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JOURNAL OF EDUCATIONAL RESEARCH

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JOURNAL *of* EDUCATIONAL RESEARCH

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ANALYSIS OF THE RELATIVE IMPORTANCE OF THE SUCCESS FACTORS COMMON IN THE TRAINING OF TEACHERS FOR THE ONE-ROOM RURAL SCHOOL

M. F. TOSTLEBE

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THE purpose of this study was to determine the relative importance of the success factors common in the training of teachers for the one-room rural schools. Although these success factors are common in the training of teachers for the one-room rural school, they are not peculiar to this field of training.

In the development of this study, the questionnaire method was used. A careful analysis was made of the "Check-list of Teacher's Activities" from the "Commonwealth Teacher Training Study" by Charters and Waples[1]; "The Professional Education of High School Teachers" by Dr. W. E. Peik[2]; and the "Analysis of Duties Pertaining to the Job of Teaching in the One-Room School" by Verne McGuffey.[3] Only those topics were selected which related directly to the methods, management, and practice teaching in the rural schools. Appropriate topics which are not present in these studies were added. The first draft of the questionnaire was presented to the members of the rural department of the Northern State Teachers College, to ex-county superintendents, and to the experienced teachers attending school, for additions, corrections, or general criticisms. The final draft of the questionnaire contained one hundred thirty-five topics.

This questionnaire was then sent to sixty-six specialists in the field of teacher training in various colleges and universities throughout the United States. Sixty-four similar questionnaires were sent to the

[1] Charters and Waples. "Commonwealth Teacher Training Study," (Chicago: University of Chicago Press, 1929), pp. 493-539.

[2] Peik, W. E. "The Professional Education of High School Teachers," (The University of Minnesota Press, 1930), pp. 9-35, Table I.

[3] McGuffey, Verne. "Analysis of Duties Pertaining to the Job of Teaching in the One-Room School," U. S. Bureau of Education, Bulletin, 1928, No. 6.

county superintendents in South Dakota. The lowest qualification for a county superintendent is the state certificate, which can be acquired through examination or two years of college training. Eighty percent of the county superintendents answering the questionnaire had two years or more of college training; 12 percent had between one and two years of college training; and 8 percent had no college training. All of these county superintendents had at least one year of experience in their position before receiving the questionnaire. The returns from the specialists ran about 74 percent. The returns from the county superintendents ran about 68 percent.

The directions for checking the questionnaire were as follows: "The purpose of the questionnaire is to help determine the relative importance of the success factors common in the training of teachers for the one-room rural schools. I shall appreciate it if you will check each item in the column which best expresses your candid opinion. Use the check-mark for indication."

The following is an explanation so as to insure an understanding of the methods of checking:

"Column headed with (+) means success factor is very important.

Column headed with (*) means success factor is of average importance.

Column headed with (−) means success factor has little importance.

Column headed with (0) means success factor should be omitted."

RELIABILITY

In order to determine the reliability of the judgments collected, all correlations were calculated by the split group method. All questionnaires used in this study had every item checked. Forty questionnaires were chosen at random from the specialists in the field of teacher training. These questionnaires were divided into two groups of twenty questionnaires each. A correlation between the reaction of the groups was made. The result of this correlation was .846 ± .016.

In like manner, forty questionnaires were chosen from the returns of the county superintendents and correlations made between two groups of twenty questionnaires each. The result of this correlation was .858 ± .015.

A correlation of .812 ± .018 was found between the judgments of the forty specialists in the field of teacher training and the forty county

superintendents. As this correlation is significant, and as space is limited, the composite judgments of both groups, the specialists in the field of teacher training and the county superintendents, were used in determining the index of estimated importance of the success factors. Table I which follows will include only the description of the success factors common in the training of teachers for the one-room rural school and the index of estimated importance of the success factors.

The index of estimated importance was determined by weighting. Values were assigned to each degree of importance as follows: "very important" was given a value of 3; "average importance," a value of 2; "little importance," a value of 1; and "no importance," a value of 0. As an illustration of how these indices were calculated, reference is made to the first success factor in Table I. Eighty-eight and eight-tenths percent of the combined groups agreed that this success factor is

TABLE I

THE COMBINED GROUP REACTION OF FORTY SPECIALISTS IN THE FIELD OF TEACHER TRAINING IN VARIOUS COLLEGES AND UNIVERSITIES THROUGHOUT THE UNITED STATES AND FORTY COUNTY SUPERINTENDENTS OF THE STATE OF SOUTH DAKOTA TO THE RELATIVE IMPORTANCE OF ONE HUNDRED THIRTY-FIVE SUCCESS FACTORS COMMON IN THE TRAINING OF TEACHERS FOR THE ONE-ROOM RURAL SCHOOL

Description of Success Factors Common in the Training of Teachers for the One-Room Rural School	Index of Estimated Importance of Success Factors
Fourth Quartile Items	
Characteristics of good or bad assignments	289
How to teach correct methods of study	288
Adapting instruction to individual differences	288
Teacher's preparation for the assignment	285
Keeping small groups profitably busy while one is reciting	285
The aim and the importance of the assignment	283
Motivating children for their work	283
How to adjust programs for several grades	281
General attitude of teacher toward the community	281
Interest	280
Types of questions (good or bad)	280
Attention	275
Professional standards and ideals (e.g., underbidding)	275
Lesson planning and its relation to teaching efficiency	274
How to organize unit method of instruction	274
Relationship of teacher with patrons and parents	274
Problem solving	274
Organization of daily routine	271
Problems and difficulties of study period	271
Development of good sportmanship attitude	271
The proper use of reference material	270
Making marks more objective	269
Teacher's remarks and comments in the community	266
Developing coöperative spirit (interesting parents in school)	266
Physical conditions of the room	266
Mastery of fundamentals as an objective of education	264
Practice in assignment making	264
Proper relationship between teacher and pupils	264
Teacher's general appearance	264
Effort	264
Practice in conducting a socialized recitation	264
Teacher's place on the playground	264
Teacher's health and care	264

TABLE I—(*Continued*)

Description of Success Factors Common in the Training of Teachers for the One-Room Rural School	Index of Estimated Importance of Success Factors
Third Quartile Items	
Adjusting teaching procedures to small classes	263
Investigating difficulties (e.g., cross questioning)	263
Individual differences due to interest	263
Practice in making objective tests	263
Value of play to education, health, and morality	263
Practice in giving objective tests	263
Objectives of elementary education	261
Mechanics, techniques, and art of questioning	261
Individual differences due to physical defects	260
General objectives (of special subjects)	260
Appreciation lesson	260
Purpose of question	260
Drill, its place and instruction	259
Providing necessary materials for study	259
Proper use of maps, charts, pictures, and globes	258
Teacher's relationship with the superintendent	257
Observation of teaching	255
Making and keeping school records	254
Proper use of lesson plans	254
Practice in lesson planning	254
What school marks measure	253
Regulation of ventilation	253
Organization of games	253
Relationship of teacher with pupils (other than class period)	251
Visual education	251
Teacher's recreation and leisure	251
Controlling tardiness and absence	250
Individual differences due to previous training	250
Objective test	250
Obtaining advice and information relating to various school problems from various sources	249
Care of school toilets	249
Developing interest in good health	249
Teacher's relationship with school board	249
Study of skills necessary in making of assignment	248
Cardinal principles	248
The moral and legal obligation of teacher in regard to conduct	248

very important; 11.2 percent of the combined groups agreed that this success factor is of average importance. Multiply the 88.8 by 3, the value assigned to very important. Multiply the 11.2 percent by 2, the value assigned to average importance. Add these two products and the resulting sum is 289, or the index number.

In this manner the indices for all the success factors were found. The resulting range of the indices is from 145-289.

For convenience of interpretation the success factors were arbitrarily grouped into four quartiles. The range of indices of estimated importance of the success factors for each quartile is as follows: the fourth quartile, from 264 to 289; the third quartile from 248 to 263; the second quartile from 225 to 247; and the first quartile from 145 to 223.

Table I includes only the fourth and third quartiles of this study.

All of the success factors in these quartiles were estimated very important by over 50 percent of the combined groups.[4]

SUMMARY

Attention can be called to a few of the significant results which are disclosed in the accompanying table.

1. All of the success factors included in the fourth quartile were estimated very important by 65 percent to 88.8 percent of the combined groups.[5]

The types of success factors which are most predominant in the fourth quartile are those centering about assignments, individual differences, study period, mastery of fundamentals, unit method of instruction, adjusting programs, teacher's personal self, and the relationship of teacher to the child and to the parents.

2. All of the success factors included in the third quartile were estimated as very important by 51.3 percent to 66.3 percent of the combined groups.

The types of success factors which are most predominant in the third quartile are those centering about objectives, art of questioning, lesson planning, individual differences, proper use of materials and teacher's relationship with superintendent and school board.

3. The success factors included in the second quartile were estimated as very important by 33.5 percent to 55 percent of the combined groups. The following six success factors are the only success factors in this quartile that were estimated as very important by more than 50 percent of the combined groups. The list is as follows:

The proper use of periodicals
Review (its importance)
What a daily lesson plan should include
Teacher's self-rating card
Practice teaching in classroom management
Laboratory method

The types of success factors which are most predominant in the second quartile are those centering about lesson types, marks and their meaning, practice in making and giving various forms of objective

[4] Always refers to the specialists in the field of teacher training and the county superintendents of South Dakota who participated in this survey.

[5] Always refers to the specialists in the field of teacher training and the county superintendents of South Dakota who participated in this survey.

tests, classroom economy, classroom management, and the teacher's relationship with the community.

4. The success factors in the first quartile were estimated as very important by 6.25 percent to 41.25 percent of the combined groups. No success factor in this quartile was estimated as very important by as many as 50 percent of the combined groups.

The following three success factors in the first quartile were the only success factors that were estimated between that of little importance and of no importance by 50 percent to 52.5 percent of the combined groups. They are as follows:

Preparing pupils for contest
Planning and managing entertainments to raise money
Acting as mediator between parents

The types of success factors which are most predominant in the first quartile are those centering about discipline, making out reports, community activities, selecting supplies and equipment, and extra-curricular activities.

It would be reasonable to conclude that in pre-service training of teachers for the one-room rural schools special consideration should be given the success factors included in the fourth and third quartiles and the six success factors listed under item 3 of the summary.

The fact that the check-list was built upon success factors primarily designed for the one-room rural school may account for the reason why only three success factors out of the one hundred thirty-five success factors were estimated between that of little or no importance.

PRACTICE, VARIABILITY AND MOTIVATION

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THE sole purpose of this article is to present in as brief and concise a manner as possible the status of the question as to what the effect of practice is upon the variability of a group. Of the several factors influencing the results particular attention is given to the factor of motivation.

STATUS OF THE FIELD

The experiments dealt with in this paper cover the years from 1908, when Thorndike (60) first attacked the problem of the effect of practice on individual differences, down to the writer's own experiment reported in 1936. The quantity of material contained in the summary table presented in this chapter bears testimony to the lively interest aroused in the problem since Thorndike's initial work. With the exception of Whitley (72), Thorndike and most of his co-workers, among them Chapman (11) and Wells (71), have held as a result of the investigations that the effect of practice upon individual differences is to increase those already existing. In more recent years Thurstone (68), Starch (55) and Race (49) have come to a similar opinion. Hunter (30:620), agrees with this point of view but admits that the bulk of the evidence is on the other side.

Among those who came early, as a result of their experimental work, to the belief that the effect of practice is to reduce individual differences, are Whitley (72), Peterson (43), as a result of his experiment on ball tossing in 1917, Perrin (42), whose work dealt with analogies and mirror reading, and Gates (24).

More recently Reed (51), pointed out that the conclusion of leading psychologists that practice increases individual differences was false because of the measures on which it was based. He said that this conclusion was justified when gains were measured by absolute increase in amount of work per unit of time, but that an entirely opposite conclusion is reached when gains are measured by time per unit of work, and that, because of this contradiction, neither measure is valid.

In the same year, 1924, Barlow (4) reported the results of three practice experiments with card sorting, mental multiplication, and substitution tests. He found that the card sorting tests showed a decrease in variability, and that the mental multiplication and substitution tests

showed an increase. He concluded that the more complex the trait learned, the stronger is the tendency for the individuals to become more unlike with equal practice, and the simpler it is, the stronger is the tendency for them to become more alike.

Kincaid (33), a year later, made an experiment in changes in variability, using Braille writing and dart throwing. She concluded that differences generally decrease with practice.

Three years later Peterson and Barlow (47) published the coefficients of variability for most of the studies of the influence of practice on individual differences that had been published before that date, forty in all. Of these, twenty-four show a reduction in variability, five show no definite change, and eleven show an increase. They also reported three new experiments of their own. In only one of these is the change in variability great enough to give the study any weight. In this one, which dealt with weekly tests in a psychology course, all sections showed a marked reduction in variability over a period of twelve weeks.

Reed's (52) study made in 1931 reviews all of the studies mentioned above. He criticizes many of them on the score that the measures used to determine whether variability increases or decreases are invalid. Reed tabulates the results of seventy-one experiments on changes in variability previously made and ranging over the years from 1908 to 1929. In fifty-nine of these using the ratio of the average of the three highest divided by the average of the three lowest, he found that 95 percent showed a decrease in variability and that 5 percent showed an increase, none showing a lack of change. Applying the measure $\frac{\text{S. D.}}{\text{Average}}$ to seventy of these experiments he found that 77 percent showed a decrease in variability, 19 percent an increase, and that 4 percent showed no change at all. Out of fifty-eight of these studies, by using the measure, correlation of initial performance with percent of gain, he found that 93 percent showed a decrease in variability, 7 percent an increase, and that none showed a lack of change.

This work seems to show that the contradictory findings of previous workers on the question of changes in variability were due largely to lack of validity in the measures used.

Two new investigations are next reported of the influence of training on changes in variability. The first of these is Reed's experiment on motor skill using the yo-yo top. His subjects were thirty-seven college sophomores. They were divided into three groups. One group prac-

ticed ten minutes a day for eighteen days, another, twenty minutes a day for nine days, and the third group sixty minutes once a week for three weeks. Using the measure for the index of variability $\frac{\text{S. D.}}{\text{Average,}}$ he found there was a drop from 1.02 for the initial performance to .25 for the eighteenth or final trial. The correlation between initial performance and percent of gain was found to be −.43, which would also indicate a decrease in variability. He found that the ratio of the average of the three highest divided by the average of the three lowest, which was 99.44 for the initial performance, became reduced to 1.31 for the final trial. These and other measures used are all in agreement in indicating a marked decrease variability. However, this procedure might be questioned in one respect, that is, in the grouping together of distributed, less distributed, and massed practice periods, all into one table of data. He says, "In calculating the influence of practice on changes in variability, no account was taken of the effect of the distribution of practice." It is conceivable that enough of the low students might have been in the group where the practice was massed to effect the variability of the whole group. Reed may have controlled this factor, but the experiment as reported gives no evidence of his having done so. Pechstein[1] found learning to be considerably influenced by the distribution or massing of practice.

The second experiment which Reed reports is one made by C. J. Edwards (19) under his supervision. In this investigation one hundred thirty-seven pupils ranging from the second to the eighth grade were the subjects. Standard tests were used in reading, arithmetic, dictation, language usage, history, and literature, nature study and science. The correlations of initial score and percent of gain for all ten tests used in all grades were found to be negative and to range from −.42 to−.75 over the period from October to May. Using the ratio of the average of the three highest divided by the average of the three lowest, he found that there was convergence in 98 percent of the cases from October to February, and convergence in 96 percent of the cases from October to May. Using the formula $\frac{\text{S. D.}}{\text{Average}}$ as a measure, he found that the percentage of convergence from October to February to be 76, while that from October to May was 85. The percentage of decrease in variability

[1] Pechstein, L. A. "Massed versus Part Methods in Trial and Error Learning," *Journal of Educational Psychology*, XII (February, 1921), 92-97.

for Grade II was 63; for Grade III, 47; for Grade IV, 22; for Grade V, 24; for Grade VI, 0; for Grade VII, 33; and for Grade VIII, 12.

In his conclusions, Edward says that the tests were made under school conditions without any special effort at individual instruction. He says, "It is possible that if every pupil had been encouraged to do a maximum amount of work, that the results would show a greater variability." He does not advocate that the best pupils be held back in any way, but he believes that the poorer pupils can be made to approach the level of the best ones by training.

Using the term homogeneity as being synonymous with the term variability, Carrol (10) sought to discover whether a group of college students would become more alike or unlike through practice on the following: First, in the complex skill of silent reading as measured by standard tests for that purpose, and second, in the simple skill of making marks as rapidly as possible in groups of five, using the left hand (or right hand if left-handed). He found that in the case of the silent reading the coefficient of variability which was 26 for the initial practice, became reduced to 15 for the final practice. Practice extended over twenty-eight periods. The total range to fluctuation in variability was from 28 on the seventeenth trial to 12 on the twenty-sixth trial.

In the case of the simple skill of making marks, Carrol found that there was a drop from 24 to 16 in the variability between the initial and forty-fifth or final trial. He found also that the fluctuations in variability were much less marked than in the silent reading. He concluded that, in the case of either a broad or a narrow mental function, practice has the effect upon a fairly homogeneous group of retaining the homogeneity or of making the group more homogeneous. In other words, Carrol's conclusions were that, regardless of the type of mental function, the effect of practice upon a fairly homogeneous group is to make that group more alike.

In 1933, Perl (41) reports a study of the effect of practice on individual differences. She used four tests in securing her data: The task of making gates, Whipple's Symbol-Digit test, a substitution test of Turkish-English words, and an arithmetic test involving a special type of addition. The subjects were fourth grade school children and twenty practices were held with each test. The standard deviation was used to determine whether practice has a leveling effect or not. The correlation of initial position and gross gain was used to show which members

improve most. She concluded that individual differences increased in all tests and for both boys and girls.

Anastasi (2), a year later reports an experiment on the effect of practice on variability. She used four tests in the experiment. The first was a Cancellation test, the second a Hidden Words test, the third the Pyle Symbol-Digit Substitution test, and last a Nonsense Syllable Vocabulary test. The tests were first scaled by being given twice to 1000 college students. Smaller groups were then practiced on these tests, their size ranging from 114 to 200 subjects. The practice consisted of 15 to 20 trials. The standard deviation was used as a measure of whether individual differences increase or decrease with practice. She also concludes that absolute are preferable to relative measures in dealing with the effects of practice on variability. Anastasi concludes that practice increases individual differences with the better subjects tending to gain most.

Table I presents data based upon eighty-six studies which dealt with the problem of the effect of practice on individual differences. Some few of these studies, McCall's (38) for example, were not made by their authors with the purpose of studying the effect of practice on individual differences. The data have been utilized by others for this purpose, however. Sims' (54) study was primarily interested in motivation as will be shown later. The eighty-six studies presented in summarized form in Table I are grouped under seven headings, and arranged alphabetically under each head. They are as follows: Arithmetical Functions, Discriminative Functions, Motor-Discrimation Functions, Motor Skill Functions, Language Functions, School Achievement, and Miscellaneous.

An examination of Table I shows that in thirty-six of the studies tabulated the authors found that practice increased individual differences. In thirty-six of them the authors concluded that the effect of practice was to reduce individual differences. In the other fourteen studies, for various reasons, no definite conclusions was reached by the authors as to the effect of practice on changes in variability. Of forty recalculations made, seven agree with the original studies that variability or individual differences are increased by practice. There are seventeen which agree with the original findings that the effect of practice is to reduce variability. The remaining sixteen are in disagreement with the original calculations.

TABLE I

Summary of Experiments on the Effect of Practice on Individuual Differences

Investigator	Subject	Practice	Unit of measure / Motivation	Measures used and findings of author	Recalculated by	New findings
ARITHMETICAL FUNCTIONS						
Addition						
Thorndike '10	19 coll. students	7 periods	Time / Competition with own record	Corr. initial rank with % of gain. Ind. diff. reduced	Kincaid	Variability increased .26 to .29
Wells '12	5 adults	30 periods	Work / Immediate knowledge of results	Similarity in learning curves. Ind. diff. increased	Reed	Variability increased .12 to .13
Donovan & Thorndike '13	29 children grade 4	30 periods	Work / Not controlled	Av. gross gains of groups of four. Ind. diff. increased	Peterson	Variability reduced .37 to .25
Kirby '13	1350 children	75 minutes	Work / No mention of motivation	The higher the initial rank the more the gain		
Hahn & Thorndike '14	192 children	90 minutes	Work / Comp. with own record. Encouraged to excel it	Gross gains. Ind. diff. increased	Reed	Variability reduced .59 to .53
Chapman '14	22 coll. students	10 periods	Work / Subject paid Knowledge of results	Ind. diff. increased. (esp. in complex material)	Kincaid	Variability reduced .29 to .26
Thorndike '16	11 coll. students	10 periods	Work / No mention	Gross gain ind. diff. increased	Kincaid	Variability reduced .26 to .21
McCall '16	72 children	18 periods	Work / Names of 3 highest announced daily	Ind. diff. not McCall's problem	Reed	Variability increased .45 to .51
Race '22	53 children	10 periods	Work / No mention of motivation	Comp. av. gross gains of highest and lowest 4ths Ind. diff. reduced	Barlow	Variability increased .52 to .62
Gates '22	23 college students	29 periods	Time & Work / No mention of motivation	Gross and relative gain Ratios good to poor Ind. diff. reduced	Barlow	Variability reduced .16 to .12
Reed '24	140 college students	60 minutes	Work / No mention of motivation	Variability reduced .80 to .21		
Perl '33	400 children	20 periods	Time / No mention of motivation	S. D. and corr. initial score and gross gain Ind. diff. increased		
Burns '36	86 college students	30 periods	Time / 1 group ord. 1 group knowledge of results	S.D., mean / 90-10 median / av. 3 hi av. 3 low Corr. initial score and % of gain. Variability reduced		

Division						
Kirby '13	1350 children	60 minutes	Work No mention of motivation	Curve showing positive relation between initial rank and gain. Ind. diff. increased		
Mental Multiplication						
Thorndike '08	25 adults	50–96 examples	Time corrected Knowledge of results	Ratios of worse to better records. Individual differences increased	Kincaid	Variability increased .37 to .42
Whitley '11	9 college students	20 periods	Time Paid for services	Gross and relative gains Position at finish correlated with initial rank. Individual differences reduced	Kincaid	Variability reduced .55 to .37
Chapman '14	22 adults	10 periods 2 daily	Work Paid for services and knowledge of results	Correlation of initial score with gross and relative gains. Individual difference increased	Peterson	Variability reduced .28 to .20
Thorndike '16	11 adults	10 daily pract.	Work No mention of motivation	Gross gain. Individual difference increased	Kincaid	Variability increased .28 to .40
Starch '19	8 college students	14 daily pract.	Time Subjects told to work hard and carefully	Gross and relative gains. Individual difference increased	Reed	Variability reduced
Gates '22	23 college students	22 periods	Time and Work No mention of motivation	Gross and relative gains Ratios good to poor used Individual diff. reduced	Barlow	Variability reduced .45 to .43
Barlow '24	20 children	12-20 periods 20 min.	Work Said to be good (by Peterson)	Variability increased	Given by Reed	Variability increased .28 to .34
Peterson and Barlow '28	96 children	882 problems 7 periods	Time Said to be high (by Barlow)	Variability reduced	Given by Reed	Variability reduced .37 to .32
Multiplication by Substitution						
gare '22	56 children	20 periods	Work No mention of motivation	Compared average gross gains of highest and lowest 4ths. Individual difference increased with practice	Barlow	Variability increased .17 to .35
DISCRIMINATIVE FUNCTIONS						
Analogies						
Perrin '19	21 college students	10 periods	Time Prize given Knowledge of results	Curves plotted. Individual difference reduced	Reed	Variability reduced .53 to .41
Cancellation						
Whitley '11	9 college students	20 periods	Time Paid for services	Gross and relative gains Individual difference reduced	Kincaid	Variability increased .27 to .30
Chapman '14	22 adults	10 periods	Work Paid for services Knowledge of results	Gross and relative gains Individual difference increased	Kincaid	Variability increased .12 to .14

			Work			
Thorndike '16	11 college students	10 periods	No mention of motivation	Gross gain. Individual difference increased	Kincaid	Variability reduced .125 to .09
			Work			
McCall '16	17 children	18 periods	Names of three highest announced	Individual differences not McCall's problem	Kincaid	Variability reduced .40 to .29
			Work	Compared average gross		
Race '22	59 college students	8 periods	No mention of motivation	gains of highest and lowest 4ths. Ind. diff. reduced	Reed	Variability reduced .15 to .13
	200	20	Time	Symbol Digit used		
Anastasi '34	college students	periods	Paid for services	Individual difference increased		
			Color Naming			
			Work			
Chapman '14	22 college students	10 periods	Paid for services Knowledge of results	Gross and relative gains Individual difference increased	Kincaid	Variability reduced .13 to .11
			Mirror Reading			
			Time			
Perrin '19	21 college students	7 periods	Knowledge of results	Curves plotted. Superior subjects improved less	Reed	Variability reduced .60 to .50
			Hidden Words			
	114	15	Time	Symbol Digit used		
Anastasi '34	college students	periods	Paid for services	Individual difference increased		
			Substitution			
			Work			
March '19	20 college students	10 periods 120 minutes	Subjects told to work hard and carefully	Gross gain. Individual difference increased	Reed	Variability reduced
			Time			
Reed '24	108 college students	400 substitutions	No mention of motivation	Variability increased .53 to .56		
			Work			
Reed '24	59 college students	400 substitutions	No mention of motivation	Variability reduced .43 to .42		
			Time			
Barlow '24	20 children	12 periods	Said to be good (by Peterson)	Variability increased .15 to .18		
			Work			
Sims '28	36 college students	12 periods 2 min. each	1st sec. ordinary 2nd sec. group 3rd sec. individual	Gain: 34.8 38.6 59.2		
			Work			
Ewert '33	94 coll. students	20 periods	Not stated	Contradictory		
			Symbol-Digit			
			Work			
Perl '33	400 children	20 periods	No mention of motivation	S.D. and corr. initial score and gross gain. Ind. diff. increased		
	134	20	Time	S.D. Individual difference		
Anastasi '34	college students	periods	Subjects paid	increased		

Turkish-English						
Perl '33	400 children	20 periods	Time / No mention of motivation	S.D. and corr. initial score and gross gain. Ind. diff. increased		
Vocabulary						
Anastasi '34	123 college students	20 periods	Time / Subjects paid	S.D. Individual difference increased		
MOTOR-DISCRIMINATIVE FUNCTIONS						
Cube Fitting						
Myers '18	14 adults	23 periods	Time / Some knew results Some did not	Nature of change in doubt	Reed	Variability stationary .12 to .12
Sorting						
Woodrow (forms) '17	20 feeble minded children 16 normal	13 periods	Work / Urged while working	Normal gained 46% Feeble-minded gained 49%	Kincaid	Variability increased: Feeble-minded .14 to .18 Normal .13 to .13
Myers (cards) '18	27 adults	20 trials	Work / Some knew scores Others did not	Av. Dev. / Average Individual difference not affected by practice	Reed	Variability increased .08 to .13
Barlow (cards) '24	20 children	6 periods 720 sortings	Time / Said to be good (by Barlow)	Variability reduced .15 to .12		
Whitley (counters) '11	8 college students	20 periods	Time / Paid for services	Correlation of initial and final rank. Individual difference reduced	Kincaid	Variability reduced .32 to .06
Brown (Cards) '14	26 college students	8 periods	Time corrected / Competition Knowledge of results	Gain of lowest 4th exceeded that of highest 4th	Barlow	Variability reduced .13 to .10
Weight Discrimination						
Whitley '11	9 college students	16 periods	Error / Paid for services	Gross and relative gains Individual difference reduced	Kincaid	Variability reduced .21 to .12
MOTOR SKILL FUNCTIONS						
Archery						
Lashley '15	19 adults	30 periods 12 shots each	Work / Prizes given Knowledge of results	Percent and gross gains used. Individual difference reduced		
Ball Tossing						
Peterson '17	28 college students	30 periods	Time / Record of performance kept by subject	Variability increased .28 to .40		
Dart Throwing						
Kincaid '25	28 college students	40 periods	Not given / Not known	Variability reduced .38 to .31		

Javelin Throwing						
Murphy '16	30 college students	100–150 periods	Errors / No mention of motivation	Standard deviation used Individual difference reduced	Reed	Variability reduced .34 to .24
Johnson '23	14 adults		Work / Self competition	Average of first 5 trials compared with average of last 5 trials. Nature of change in doubt	Peterson	Variability increased .16 to .19
Making Marks						
Carrol '32	college students	45 periods	Work / None stated	Variability reduced .24 to .16		
Making Gates						
Perl '33	400 children	20 periods	Time / No mention of motivation	S.D. and corr. initial score and gross gain Ind. diff. increased		
Maze Running						
Whitley '11	9 college students	20 periods	Time / Subjects paid	Gross and relative gains Individual diff. reduced	Kincaid	Variability reduced .30 to .25
Mirror Drawing						
Reed '24	58 college students	15 trials	Time / None mentioned	Variability reduced .32 to .24		
Ewert '33	40 college students	100 trials	Time corrected / Cash prizes	Slight increase in variability		
Rifle Practice						
Lashley '15	9 adults	30 periods	Work / Prizes given; Knowledge of results	Percent and relative gain used. Individual difference reduced		
Tapping						
Gates '22	23 college students	22 periods	Time and Work / None mentioned	Gross and relative gain Ratios good to poor used Individual diff. reduced	Reed	Variability increased .10 to .12
Yo-Yoing						
Reed '31	37 college students	18 periods	Work / No mention of motivation	Variability reduced 1.02 to .25		
666		180 minutes				
LANGUAGE FUNCTIONS						
Language Completion						
Race '22	31 children	10 periods	Work / None mentioned	Lowest 4th gained more than highest 4th	Reed	Variability reduced .11 to .09
Opposites						
Chapman '14	22 college students	10 periods	Work / Subjects paid Results known	Gross and relative gains Slight increase of individual difference	Kincaid	Variability reduced .21 to .15
Hollingworth '14	13 college students	175 trials	Time / Prizes given Rank known	Author believed changes due to qualitative changes in test		

Code Writing

			Time	S.D. 90%-10% Av. 3 hi.		
Burns '36	86 college students	30 periods	Ordinary and high motivation	mean median Av. 3 low corr. init. score and % of gain. Variability reduced		

SCHOOL ACHIEVEMENT

Arithmetic

			Work			
Henmon '20	128 children	9 periods 1 a mo.	Subjects watched own improvement	Highest 4th made most gross gain		

History

			Work			
Race '22	97 children	20 periods 800 min.	No mention of motivation	Lowest 4th exceeded highest 4th in gain. Individual diff. reduced	Reed	Variability reduced .34 to .26

Reading

			Work			
Henmon '20	128 children	9 periods 1 ea. mo.	Subjects watched own improvement	Gross gain. Individual difference increased		
Sims '28	45 college students	12 periods 3 min. ea.	1st sec. ordinary 2nd sec. group 3rd sec. individual	Percent of improvement: 8.7 14.5 34.7		
Carrel '32	college students	28 periods	Not stated	Variability reduced .26 to .15		

Spelling

			Work			
Henmon '20	128 children	9 periods 1 ea. mo.	Subjects watched own improvement	Gross gain. Individual difference increased		

Stanford Achievement Test

			Work			
Edwards '29	Grades 2 to 8	8 months	Normal school conditions	Variability reduced Oct. .45 Feb. .28 May .26		

Writing

			Work			
Henmon '20	128 children	9 periods 1 ea. mo.	Not known	Gross gain. Individual difference increased		

MISCELLANEOUS

Braille Writing

			Not stated			
Kunsul '25	31 college students	47 periods	Not stated	Variability reduced .29 to .17		

Copying

			Work			
McCall '16	75 children	20 periods	Names of 3 highest announced daily	Individual difference not McCall's problem	Reed	Variability reduced .36 to .23

Intelligence Tests

			Work			
Race '22	38 children	15 periods of 30 min.	No mention of motivation	Lowest 4th gained more than highest 4th. Individual difference reduced	Reed	Variability reduced .28 to .18

			Psychology			
			Work			
Peterson and Barlow '24	224 college students	8–10 weeks	Competition Papers scored and returned	Variability reduced .30 to .18		
			Saying Alphabet Backwards			
			Time			
Reed '24	129 college students	12 trails	No mention of motivation	Variability reduced .59 to .42		
			Telegraphy			
			Work			
Thurstone '18	165 adults	100 hours	No mention of motivation	Standard deviation and quartile deviation Individual diff. increased	Peterson	Variability reduced .74 to .52
			Typing			
			Work			
Thorndike '16	11 college students	10 periods	No mention of motivation	Individual differences reduced	Kincaid	Variability reduced .41 to .18
			Time	Av. Dev.		
Myers '18	14 adults	25 periods	No mention of motivation	mean used. Individual diff. not changed by practice		
	19 high school	180	Work			
Chapman '19	students	periods	Urged to do very best	Interested in curves only	Peterson	Variability reduced .16 to .07
	10 high school	360	Work			
Sandiford '29 f	students	hours	Not known		Reed	Variability reduced .09 to .02
			Color Naming			
			Work and Time			
Gates '22	23 college students	22 periods	No mention of motivation	Gross and relative gains used. Individual differences reduced	Reed	Variability reduced .21 to .17

MOTIVATION USED

These disagreements found in these studies may be due to many things. Of these many things the author has been particularly interested in the motivation factor. Table I shows that in the eighty-six studies tabulated, the kind of motivation used may be grouped under ten types. In many of the studies more than one type of motivation was used. A check-up will show that in some cases the motivation was simply school conditions; in others it was reported as uncontrolled. In three experiments some subjects were motivated more than others, though just which ones these were or why this practice was followed is not made clear. In three experiments competition served as a motivator. Four experiments are alleged to have had good motivation. In five cases prizes of varying values were offered and in five other cases the subjects were urged to do their best. Eleven experimenters paid their subjects for their time. The type of motivation used most was some form of knowledge

of result. This was used in twenty-three cases. In thirty-five of the experiments, or more than 40 percent of them, the experimenter failed to mention what sort of motivation was used.

Sims' study already referred to should be noted in connection with motivation. He studied the simple function substitution and the complex one reading. In the study of both functions he used three sections of twelve subjects each equated as to initial score. One section he describes as working under normal or ordinary motivation. This is called in the experiment, the control section. One section he calls the group-motivated section. This section was divided into two parts, one part competing against the other. The third section is known as the individually motivated section. This section was divided into two groups, the members of which chose members from the other group to compete with. The relative effectiveness of the two types of motivation is shown in Table I in terms of percent of improvement. It is unfortunate that the data from this experiment are not available, as they would probably be very valuable from the standpoint of the effect of motivation on changes in variability with practice.

Among the experiments which had for their major interest the effect of practice upon changes in variability, Ewert's (20) is unique as one where adequate attention was given to motivation. He used a system of reward and penalty, together with a substantial prize, which assured a very high motivation in studying the function mirror drawing.

Another experiment which had motivation as its paramount interest was Burns' (8) reported in 1936. In this experiment two parallel and equated groups were practiced under as nearly as possible identical conditions except that one worked under normal or ordinary classroom conditions while the other group worked with knowledge of results as well as competition among the group. Two functions were studied, addition and code writing. Each group was composed of forty-three subjects and practices consisted of five minute periods in each function five days a week for six weeks. Using the measures standard deviation divided by the mean, the ninetieth minus the tenth percentile divided by the median, ratio of the average of the three highest divided by the average of the three lowest at the beginning of practice compared with the ratio of the same individuals at the close of practice, correlation of initial score and percent of gain, it was found that in each case the variability became reduced during practice. The effect of motivation in the case of the addi-

tion was negligible. In the case of the code writing the motivation acted to lessen the reduction in variability during practice.

Table I indicates a lack of attention to the motivating factors involved in the studies summarized therein. The fact that more than 40 percent of the experiments make no mention of the motivation used illustrates this fact.

Various studies of motivation convince one that this is a serious oversight. There is no need to enumerate these studies here as they have already been ably summarized by Diserens and Vaughn.[2]

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THE CONSTRUCTION OF FRENCH READING MATERIAL FOR SECOND YEAR HIGH SCHOOL[1]

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RECENT developments in modern language methodology present to the teacher a new outlook and a challenge. Since the Report of the Committee of Twelve[2] in 1898, instruction in modern foreign languages has centered about the fourfold aim of speaking, writing, understanding and reading the language. During this time a variety of methods have been in vogue for longer or shorter periods, the early grammar-translation method largely giving way, in theory at least, before the direct method or one of its numerous adaptations, and this being since replaced in many schools by a so-called eclectic or combination method. With one or with several of these methods in turn, the teacher of modern foreign language has struggled to accomplish the impossible task of giving the pupil in two years' time—for only a small proportion of her pupils continue to study longer—such an ability to read, speak, write and understand the language as would be permanently useful to him. A few gifted teachers, if judged by the accomplishment of their best pupils, may have achieved satisfactory results, but the average teacher in the average school situation was predestined to failure, and even the superior teacher, when she analyzed results in terms of the extent to which the pupil *himself* could actually use the language as an instrument of speech and writing, and likewise in terms of his reading experience, sensed vaguely that something was wrong, and was forced to seek solace in those time-worn alibis of "too meager time-allotment for foreign languages," or "language inaptitude" of her pupils.

It remained for the Modern Foreign Language Study to reveal, by means of an extensive testing program of national scope, that this discrepancy between objectives and attainment, which individually and locally teachers had found disquieting, was general, and of such magnitude as to call for immediate and drastic revision of aims and practices in the light of scientific research and existing school conditions. In the Report[3] which synthesizes the findings of the Study and formulates the

[1] This article is a summary of a study made at the University of Iowa High School under the direction of Dr. Helen M. Eddy of the department of Foreign Languages, during the years 1929-1932.

[2] *Report of the Committee of Twelve of the Modern Language Association of America.* Boston: D. C. Heath & Company, 1901.

[3] Coleman, Algernon, *The Teaching of Modern Foreign Languages in the United States*, The Macmillan Company, 1929.

conclusions of the Committees on Investigation, the specific nature of this revision is indicated in the recommendation that for the two-year course reading ability be made the primary and essential objective to which all other aims shall be subordinated and to which all class activities must contribute or be discarded. Here, indeed, is a new outlook for the modern-language teacher!

We have in reading an objective which more than any other gives promise of being attainable for the great majority of pupils in two years' time. As witnesses to this fact, the noteworthy attainments of Michael West[4] in teaching English to Bengali boys may be cited, and, in the field of French, the pioneer work of Professor Otto F. Bond[5] at the University of Chicago, besides a number of other experiments such as those conducted at the University of Illinois,[6] the University of Iowa[7] and the University of Iowa High School.[8] That it is automatically attainable is not to be expected. In many schools where formal grammar is taught and much time is given to oral work and composition, reading has long been, in theory at least, the primary aim; yet investigation carried on by the Study has shown that at least half of our high-school pupils fail to attain this aim in two years, and the case is none too clear for its attainment by the lower half of the class in three years. The Report clearly recognizes the necessity of a specific reading technique if reading is to be retained as a valid objective for the two-year course. Such a technique is an integral part of all the experiments referred to above. The new two-year course recommended in the Report presupposes likewise the construction of new teaching materials. In fact, final conclusions regarding the efficacy of the proposed plan cannot be drawn until

[4] West, Michael. *Bilingualism*, Occasional Reports, No. 13, Calcutta: Government of India, 1926. A summary of West's experiments may be found in *The Teaching of Modern Languages in the United States, op. cit.*, pp. 155-157.

[5] Bond, O. F. "The Organization and Administration of a First-Year French Course at the College Level," in *Studies in Secondary Education, II*, Supplementary Educational Monographs, No. 26 (University of Chicago Press, February, 1925), pp. 177-200.

[6] Tharp, J. B., and Murray, Eloise. "Grammarless Reading of Foreign Languages," *Modern Language Journal*, XII (February, 1928), pp. 385-390.

[7] Young, C. E., and Vander Beke, G. E. "An Experiment in Second-Year French," and Young, C. E., and Daus, J. M. "An Experiment in First-Year French," both in the *Modern Language Journal*, XI (October, 1926), pp. 25-31, and XII (February, 1928), pp. 356-364.

[8] Steep, George W., Jr. *An Experiment in the Reading Method*, and Struble, Marguirette M. *An Experiment in the Reading Method of Teaching Second-Year French in High School*. Both unpublished Master's Theses at the University of Iowa, 1928.

these are ready in sufficient amount to provide subject-matter for a complete two-year reading unit. Method, pupil activities, and course content must be re-evaluated in terms of their contribution to reading ability, and on the basis of that re-evaluation utilized or rejected for the two-year course. Textbooks and testing materials, as the principal determinants of content and dictators of method, will necessarily be trail-blazers in this new venture. As these appear, they must be subjected to a rigorous program of alternate experimentation and revision, which by ensuring the survival of the fittest only, furnishes a most effective means for improving the teaching of modern languages. What greater challenge for the progressive teacher than the opportunity thus afforded of taking an active part, on the one hand, in creating the materials of her teaching or, on the other, of providing through scientifically conducted experiments the only adequate means for perfecting these materials into more useful instruments for the accomplishment of her purposes!

In an article[5] which appeared soon after the Report, Professor E. W. Bagster-Collins has outlined the course which textbooks designed to teach reading according to the new conception, must logically follow. He says:

"The crying defect of the average reading course is that it consists of the translation or one language interpretation of a very small number of pages of text. This so-called extensive reading is a misnomer. The rate of reading the foreign language should bear a much closer resemblance to that which children maintain in reading their own language. That is extensive reading proper."

Elsewhere in the same article, the problem is re-stated as follows:

"The texts that we have are in a measure the outcome of our common attitude toward reading. There is a strong tradition in this country that the material chosen for reading shall rise rapidly from the standpoint of difficulty. Extensive reading could mean at best the translation of a comparatively few pages a term. And it can mean nothing else unless we are able to plan a course which will allow pupils to travel with ever increasing speed across an almost level plain. It will always be impossible to gather momentum and speed up a steep gradient . . . Much could undoubtedly be done toward solving the problem of extensive reading, if teachers would reconstruct their ideas with regard to gradation, if

[5] Bagster-Collins, E. W. "Observations on Extensive Reading," *German Quarterly*, III, No. 1 (January, 1930), pp. 18-27.

they could be induced to think far less in terms of vertical ascent and far more of horizontal extension."

The need then is for texts aimed toward the progressive development of reading ability by means of actual reading experience with material in which the gradient of difficulty is so gradual as to be almost imperceptible. Professor Bagster-Collins offers the following specific suggestions as to how such texts may be obtained:

"Ultimately, however, the proper solution lies in the simplification of literary texts. Many interesting texts would be better adapted for extensive reading purposes if difficult passages, sentences, or words were either deleted or, wherever possible, recast in simpler form. It is easily possible in this way to reduce the vocabulary by at least 25 percent. In the normal literary text there are from 60 to 75 percent of the words which appear but once, and even those that are found five times or under constitute nearly 90 percent of the vocabulary. Many of the words, sentences or even passages found in a text are in a sense blemishes in what might otherwise be regarded as suitable material. By elimination, then, and particularly by getting as many words as possible out of the 'one column,' the now difficult task of providing suitable texts would more nearly approach an adequate solution. I need hardly draw attention to the fact that it has often done in the case of music and frequently also in the literature of our mother tongue. Moreover, we have never hesitated to eliminate from foreign texts passages which were considered undesirable for school use. Novels too long for class purposes have also been much reduced in size. It goes without saying that changes should be made with the utmost care and that it would limit the choice to the works of authors no longer living. Once the principle were accepted it would be even feasible to provide a sequence of texts of such a nature that pupils would at no time be burdened with an undue number of new words. Pedagogically speaking the idea is sound. Whether it will be done on a sufficiently large scale is another matter."

As Professor Bagster-Collins himself points out in proffering the above solution to the textbook problem, he is not advocating an untried theory, but the purposeful extension of a current practice. The most comprehensive and significant example of the simplification of literary texts that has so far been made available is found in the readers constructed by Dr. West in conjunction with his experiments in teaching Bengali boys to read English. The West series comprises seven class readers introducing a vocabulary of 2751 words and, in addition, eleven

supplementary or plateau readers designed to provide at regular intervals a more extensive reading practice within the pupil's known vocabulary. The essential feature of the direct-reading technique as developed by Dr. West is the gradual acquisition through reading practice of a controlled vocabulary of maximum reading utility. New words, selected on the basis of frequency in the Thorndike word list,[10] are gradually introduced and frequently repeated; all other words in the text belong to the pupil's known vocabulary.

That the Committee on Investigation of the Modern Foreign Language Study had in mind a similar procedure as the most promising solution to the problem of teaching American youth to read a modern foreign language is clear from the following excerpt taken from the Report.[11]

"[The direct procedure in teaching reading] would imply the preparation of reading texts in which only the commonest words and idioms occur at first, with a gradually increasing range as the reader gathers enough headway to go over obstacles more easily. Such a gradual introduction to vocabulary is exemplified in all beginners' language texts . . . The difficulty about the language texts is that the vocabulary for intensive study is often not really common in written discourse, and the reading is insignificant in kind and in quantity. Efforts to supply simple reading matter often result in providing material below the student's level of maturity. Professor West has indicated the way of remedying the latter situation, and the various word and idiom lists now available will be of great assistance to the makers of the beginners' language and reading texts of the future."

Since 1928 the construction of elementary reading texts in French on West models has been in progress at the University of Iowa High School. Two class readers and three plateau readers, comprising a first-year unit, were first completed. Through the medium of the class readers totalling 251 pages and providing some 61,000 running words of continuous reading matter, a vocabulary of approximately 1600 words and idioms (including so-called cognates, i. e. words identical with or very closely resembling known English words) has been built up, the criterion of selection being high frequency in Vander Beke's *French Word Book*,[12] a list corresponding to Thorndike's in English, and Cheydleur's

[10] Thorndike, Edward L. "Teacher's Word Book of 20,000 Words," Bureau of Publications, Teachers College, Columbia University, 1931.

[11] *Op. cit.*, p. 274.

[12] Vander Beke, George E. *French Word Book*. Macmillan, 1929.

French Idiom List.[13] New words occur at least three times upon their first appearance, and as often thereafter as possible.

The present study is a report of the application of essentially the same technique in an adaptation of Dumas' novel *Les Trois Mousquetaires*[14] for use as a class reader in second year high school or at the corresponding level in college.

Several factors contributed to the selection of Dumas' romantic tale as a particularly suitable instrument for the purpose intended. In the first place, it ranks high in favor among those stories of the world which are the common heritage of mankind and the favorites of children in many languages. Moreover, *Les Trois Mousquetaires* is most popular with children of 14-15 years,[15] the exact age in which we are primarily interested. The story has, however, a verve and a dash which captivate even an eleven-year-old, and which, indeed, few adults can resist. It offers the further advantage of being almost equally popular with boys and girls.[16]

As Dumas' best-known novel, it affords, too, the logical introduction to the other works of this "master of the art of story-telling." But in addition to these characteristics which mark is as desirable for inclusion in any reading course at this level, the story has certain other features which render it particularly adaptable to our purpose of simplification. Since the essence of the novel is contained in the breathless action of its plot, development of the story is dependent largely upon the use of dialogue, with a minimum of space and importance allotted to elaborate description. Now it is precisely such long descriptive passages which present the greatest difficulty in any attempt to recast an original text into simpler language. With description relatively infrequent, and with precedent already sanctioning the omission, from school editions, of those more rambling portions of the original which are superfluous to the main thread of the story, the task of simplification is considerably reduced. Moreover, in choosing Dumas, we shall in the main acquit ourselves of the chief indictment brought against the maker of simplified texts, that of tampering with a masterpiece of literary art. Dumas' writ-

[13] Cheydleur, Frederic D. *French Idiom List*. Macmillan, 1929.

[14] Struble, Marguirette, and Eddy, Helen M. *Les Trois Mousquetaires*. Heath-Chicago French Series, D. C. Heath, 1932.

[15] Terman and Lima, in *Children's Reading*, (Appleton, 1926), place it at age 11-16.

[16] *Ibid.*, p. 74. *The Three Musketeers* appears fifth in a list of the twenty books most liked by boys, and seventh in a corresponding list for girls.

ings, while masterpieces of bold, daring adventure, do not rank as masterpieces of literary expression and artistic form. Obviously, then, the objection to adaptation on ethical and aesthetic grounds is much less valid in the case of a Dumas than in that of an Anatole France or a Daudet. And, lastly, there is available in the form of vocabulary analyses objective evidence that the proportion of low-frequency words to be dealt with is not so great as to make simplification too difficult.[17]

As in the case of the first-year texts already described, frequency, or to be more exact, range, in the Vander Beke *French Word Book* and the Cheydleur *French Idiom List* was again adopted as the criterion of word selection. The first-year allotment for vocabulary had been 1500 words and 482 idioms (including 32 duplicate items in sections D and E of the Cheydleur list), approximately the first quartile of the word and idiom lists respectively. Of these, 1219 words and 287 idioms had been used in the first-year class texts. The remaining items of the first-year lists, plus an additional 1069 words and a corresponding portion (271 items) of the idiom list, were arbitrarily set as the new vocabulary allotment, herein referred to as vocabulary unit 2, from which all new words introduced into this text would be selected. Preference was always given to those items remaining from the first-year quota, as they are the most common of all and therefore of greatest service to the pupil. To adhere to the frequency criterion to the point of requiring that words be introduced exactly in the order of their ranking in the basic lists would be too artificial in practice; besides, as Dr. West and others have pointed out, beyond the first thousand items the order of words in a frequency count, while still valuable as an indication of usefulness, is accurate only within a wide margin. However, a word within the 16th hundred, for example, would be given preference over one from the 18th hundred, etc., and a word from the 24th hundred would be used only if none of the more common words would fit the context, or in case the less common word occurred in the original and permitted of easy repetition.

The procedure in introducing new words was in general the same as that employed for first year. A new word was inserted in the margin in the line of its first appearance. Whenever possible it was repeated three or more times in close succession, and thereafter at gradually in-

[17] Hamilton, Marion. *Studies in the Vocabulary of Second Year French Reading Texts.* Unpublished Master's thesis at the University of Iowa, 1931. The vocabulary of *Le Trois Mousquetaires* is classified as follows: words within the first 2000 of the Vander Beke *French Word Book*, 48 percent; words below 2000 or not occurring in the list, 42 percent; English cognates, 10 percent.

creasing intervals. However, bearing in mind that at the stage for which this reader is intended pupils are reading paragraphs and even pages at a speed and with a facility of comprehension commensurate to that at which sentences or still smaller units were read in the early stages of the course, the rule-of-thumb "three repetitions in close succession upon first appearance" seemed to permit of rather freer interpretation than in the first stories. Whereas in the beginning books three pages are allowed for the occurrence of the three initial repetitions, in this book a range of four pages is permitted. Occasionally this limit is exceeded; often, on the other hand, the three occurrences cover only two or three pages; sometimes, though rarely, they are on the same page. This wider spacing of repetitions seemed, in fact, desirable from an artistic viewpoint. As pupils gain the ability to read with an ease approaching more closely that of reading the mother tongue, they become less conscious of the mechanics of reading, and correspondingly more conscious of the quality of the material read. In the early part of the course the attention of the pupil is so absorbed by his efforts to cope with unfamiliar symbols in constantly changing combinations that he thinks of a word almost wholly in its primary thought-relation to the rest of the sentence and practically not at all of its artistic relation. As skill develops and conscious effort is partially released from the mere mechanical activities of reading, he becomes increasingly critical of form and style in reading matter. So it is that repetitions which earlier would not have attracted his attention in the least, other than to call up an association of meaning, come to "strike him in the face," so to speak, to seem unnatural and obtrusive. This fact sets up an additional and exacting determinant of what is or is not an acceptable repetition at the second-year level.

Another problem bearing upon the introduction of new words may be mentioned here. It is referred to by West as the Law of Diminishing Returns in learning. The following quotation will suffice to make its meaning clear:[15]

"But it is to be remembered that there is a Law of Diminishing Returns in learning. A beginner knowing 300 words can add another hundred with less effort than can a person who already knows two or three thousand words. Moreover, as the working vocabulary becomes larger and larger, it becomes more and more difficult to bring in new words and to get adequate repetitions of them in the manner already illus-

[15] West, Michael. *Language in Education* (New York: Longmans Green, 1929), pp. 76-77.

trated. These two factors come into operation very powerfully when the vocabulary is about 1500 to 2000 words. I am, therefore, inclined to believe that at this point the density of new words should be decreased from 17 to 10 per thousand. Conversely, the child learning his first 300 words is learning rapidly; new words are badly needed, are easy to bring in and easy to repeat; hence the density here may be greater, e. g., 25 or 20 new words per thousand."

Table I shows the density of new forms in this adaptation of *Les Trois Mousquetaires*, density being expressed in terms of the number of running words per new word or idiom, and likewise as the number of new forms per thousand running words. The count of running words includes only the reading material of the story proper; the exercises in French which accompany each chapter are omitted from this count. Totalled as "new forms" are all items that require some effort on the part of the pupil for their comprehension and retention: these include, in addition to 442 words and 161 idioms met for the first time in this

TABLE I

DENSITY, EXPRESSED IN TERMS BOTH OF THE NUMBER OF RUNNING WORDS PER NEW FORM AND THE NUMBER OF NEW FORMS PER THOUSAND WORDS, COMPUTED FOR EACH CHAPTER OF *Les Trois Mousquetaires*, ADAPTED EDITION

Chapter	Number of running words*	Number of new forms†	Density	
			Running words per new form	New forms per 1000 running words
I	3,463	60	58	17
II	3,604	51	71	14
III	1,932	32	60	17
IV	3,658	55	67	15
V	2,149	35	61	16
VI	3,776	63	60	17
VII	2,576	43	60	17
VIII	2,250	32	70	14
IX	3,858	58	67	15
X	2,064	32	65	15
XI	1,881	23	82	12
XII	5,848	77	76	13
XIII	1,886	26	73	14
XIV	2,577	42	61	16
XV	1,129	13	87	11.5
XVI	1,895	23	82	12
Text as a whole	44,546	665	67	15

*This count includes only the material of the story proper, irrespective of the exercises in French which follow each chapter.

†Included in this count, in addition to words and idioms met for the first time and introduced in the regular manner, are 53 words and 9 idioms already familiar in one meaning, but occurring here in quite a different meaning, and therefore comparable in difficulty to a new word.

text, 53 words and 9 idioms already familiar in one meaning but occurring in this text in quite a different meaning, and therefore comparable in difficulty to a new word. Chapter I has density of 58; that is to say, there are 58 running words of reading material to every new word and idiom. Chapter 15, on the other hand, contains 87 running words of text per new form. These chapters of the book represent respectively the lowest and highest densities. It will be observed that, in general, density in the first eight chapters of the book is lower than that in the last eight chapters, the averages being 63 and 72 respectively. In other words, we may say that new words are introduced somewhat more closely together in the first half of the book than in the last half, averaging 16 new forms to each 1000 running words in the first eight chapters, and 14 new forms per thousand running words in the remainder of the book. This is in accord with the Law of Diminishing Returns referred to above. For the book as a whole, the density is one new form per 67 running words, or 15 new forms per thousand. A density of 10, as suggested by West, would, it is true, facilitate the task of both the simplifier and the pupil. But it would also increase the cost, since to introduce a vocabulary of 500 new words, using a density of 10, would require some 200 pages of reading material, while with a density of 15 about 135 pages would be required. Besides, the vocabulary load of the English pupil learning French is, or may be, considerably lightened as a result of the relationship existing between the two languages, while the Bengali boy learning English has no such advantage. Since systematic training in the recognition and use of this relationship as an aid to vocabulary building is provided throughout this series of texts, it was decided to adopt for the new reader a density of somewhat higher than that suggested by West, even though the working difficulties would thereby be appreciably increased. The problem of introducing new words did, in fact, retard progress considerably in the later chapters, for beyond the 1500 mark in the frequency list the vocabulary includes a number of words requiring a more or less special context, and the known vocabulary is becoming increasingly adequate for relating the whole story.

In the treatment of (so-called) cognates the same general plan was followed in this text as in the preceding books of the series. The problem "What is a cognate, from the reading standpoint?" resolves itself into two questions: (1) What French words bear such a resemblance to English in form and meaning as to call up at once in the pupil's mind the corresponding English word? (2) Can it be reasonably expected that

the average pupil knows the meaning of these English words and will be enabled thereby to arrive without effort at the meaning of the unfamiliar French words? It will be seen that the answer to these questions varies with the language experience of the pupil, his maturity, and other factors. Accordingly, with pupils in their second year of French study, somewhat greater freedom is permissible in the use of cognates than is advisable with beginners. Until, however, there is further experimental evidence to supplement subjective judgment on the choice of cognates, it seems wiser to risk erring on the side of assuming too little than on that of assuming too much. Certain data are already available; for example, Dr. Limper's[19] study of pupil-recognition of cognates out context proved useful in the present instance. As an effective criterion of the pupil's knowledge of English words, the *Thorndike Word Book* was also applied. For the present purpose, familiarity with the first 5000 words of Thorndike's list was assumed as certain, and any French word obviously cognate with one of these was used unhesitatingly. Since such cognates require no effort on the part of the pupil for their comprehension and retention, no attempt was made to repeat them any specified number of times, nor were they counted as new words in the computation of density. Cases of words cognate with English words in the second 5000 of this list were decided on the basis of Limper's findings and the judgment of several experienced teachers, while if the English word belonged to the third or fourth 5000, comprehension of the corresponding French word was considered very doubtful unless the word was only a slight variation on the stem of a very common English word, e. g., *inaction* (frequency 15,000), *action* (frequency 2,000). For the most part doubtful cases were barred, if beyond the allotted frequency, or introduced, if within the new-word frequency. In a few instances where such doubtful cognates were used, they were included in the general vocabulary, for the benefit of those pupils who might not recognize them, either because they did not know there was such an English word, or because they did not know its meaning. All other cognates, totalling in number 620, were listed alphabetically, without meanings, for pupil and teacher reference.

Closely allied to the problem of cognates is that of variations on the stems of known French words, for example, RE*charger*, *légère*MENT, *danger*EUX. Since the most common prefixes and suffixes are included

[19] Limper, Louis H. "Student Knowledge of Some French-English Cognates," *French Review*, VI, 1 (November, 1932), pp. 37-49.

in the word-study exercises of the first-year books, such words were used if it seemed certain that they would cause no difficulty to the pupil, otherwise they were introduced in the regular manner, or, if low in frequency, excluded.

Words once introduced in the series and occurring later in a different meaning appear in the margin in parentheses in order that the pupil's attention may be called to them and that at the same time he may distinguish them from an entirely new word. If the second meaning is so different from the first as to constitute from the pupil's standpoint a learning problem comparable to that presented by a new word, it is counted as a "new form" in estimating density. Slight extensions of meaning, practically certain to be easily comprehensible to pupils, are classified as usages; these are disregarded in determining density. For example, in computing density *reprendre* (to reply) and *reprendre* (to continue) count as one word, as do *redouter* (to fear) and *redouter* (to dread); but *aborder* (to land) and *aborder* (to accost) count as two, likewise *la douceur* (softness) and *la douceur* (sweetness).

In the simplification of practically any selection there are a few low-frequency words that must be retained because they are indispensable to the story. Throughout the series it has been the practice to supply in parentheses the English meaning of these words upon their first appearance and as often thereafter as seemed necessary considering the number of repetitions and the interval between them. This practice was continued. Such low-frequency words used in this text total 45. They are omitted from the general vocabulary.

Each chapter of reading text is followed by a set of comprehension exercises in French on the content, and a section of word-study exercises designed to assist vocabulary-building. The comprehension exercises include questions, as well as objective tests of the multiple-choice, true-false, completion and matching types. Conscious effort was made to use in these exercises words introduced in this text either in the chapter or previously. The word-study material brings out salient points of relationship between French and English, contains interesting word-histories, and by a variety of exercises aims to assist the memory by association of synonyms, opposites, word-families and the like. It may be pointed out here that because of the "Law of Diminishing Returns in Learning" discussed above, such association and grouping of words becomes increasingly important as the pupil's vocabulary grows larger.

As completed, the adaptation of *Les Trois Mousquetaires* includes all

the major incidents of the plot that center around the hero d'Artagnan, with résumés in French of omitted portions that are essential to the thread of the story. It contains approximately 185 pages, providing some 45,000 running words of continuous reading matter, irrespective of the exercises in French. The story is told within a total vocabulary of 2464 words and idioms, which may be classified as follows:

New vocabulary	
New words introduced in this text	442
Words already known in one meaning, but introduced in this text in a different meaning	53
Idioms introduced in this text	161
Idioms already known in one meaning, but used here in quite a different meaning	9
Known vocabulary	
Known words from the first-year unit	953
Known idioms from the first-year unit	151
Cognates (both new and old)	650
Lower-frequency words with English meaning supplied	45
Total vocabulary of *Les Trois Mousquetaires*	2464

The actual vocabulary load of the book is represented by the sum (665) of the first four items, since the cognate group includes only words offering no difficulty to the learner, and all other words used are either familiar or have the meaning supplied. Expressed in terms of percentages, the total vocabulary of the text as adapted is made up of the following parts:

Basic vocabulary[20]	72 percent
Vocabulary introduced in this text	27 percent
Known vocabulary from first-year unit	45 percent
Cognates	26 percent
Lower-frequency words[21]	2 percent

This text brings the vocabulary for the series as a whole to a total of some 2600 words and idioms, of which approximately 1850 represent the actual vocabulary load and the remainder are cognates and idioms causing

[20] *i. e.*, words and idioms within the first 2569 of the *French Word Book* and approximately 40 percent (771 items, including 50 duplicate items in sections D and E) of the *French Idiom List*. It will be noted that this figure does not include cognates.

[21] *i. e.*, words below the 2569 limit, used in this text with English meaning supplied.

TABLE II

DISTRIBUTION BY 100'S OF UNIT 2 VOCABULARY* CLASSIFIED ACCORDING TO ITS USE IN *Les Trois Mousquetaires*, ADAPTED EDITION

		Words Used in *Les Trois Mousquetaires* Position in *Vander Beke Word Book*											
	Known 1st yr. unit	281 words remaining from unit 1	16th 100	17th 100	18th 100	19th 100	20th 100	21st 100	22nd 100	23rd 100	24th 100	25th 100	2500-2569	Grand Totals
New words introduced		110	33	39	31	33	44	33	30	28	18	27	16	442
Words known in one meaning, introduced in widely different meaning	39	5		1		1	3	2		1		1		53
Usages†	14		1						1			2		18
Cognates‡		87	22	19	22	22	12	16	17	9	11	12	11	260
Simple variants on known or cognate stems			4	4	1	1	2	1	2	1	1			17
Previously used in texts of unit 1			4	3	4		2	3	3	3	5	2	1	30
Total§ in *Les Trois Mousquetaires*		197	63	65	58	56	60	53	52	41	35	41	28	749
		Words not in *Les Trois Mousquetaires*												
Total not in *Les Trois Mousquetaries*		84	37	35	42	44	40	47	48	59	65	59	41	601
Met in texts of unit 1; require no further introduction			3	1	2				2	1	3	1		13
Cognates		38	13	14	16	23	16	27	17	26	21	18	6	235
Simple variants on known or cognate stems			1	1			3						2	7
Total offering no difficulty		38	17	16	18	23	19	27	19	27	24	19	8	255
New words remaining		42	20	18	24	20	21	20	29	31	40	39	33	337
Usages remaining		4		1		1				1	1	1		9
Total new words and usages remaining to be introduced		46	20	19	24	21	21	20	29	32	41	40	33	346

*See p. 427 for explanation of the term "unit 2 vocabulary."

†Slight extensions of meaning, easily comprehensible to pupils without aid.

‡Words so closely resembling known English words as to cause no difficulty to pupils.

§Usages and second meanings of words already known in one meaning are not reckoned in this total, since they are duplicates of words previously counted as used in this series of texts. (There are few separate entries in the Vander Beke list for the various meanings of a word, except in the case of a difference in the part of speech.)

no difficulty from the recognition standpoint. It will be remembered that the vocabulary allotment for the first-year unit had been the 1500 words and 482 idioms (including 32 duplicates) of highest frequency in the Vander Beke and Cheydleur lists, this allotment representing approximately 25 percent of each list; and that the 281 words and 163 idioms remaining from this first-year quota, plus an additional 1069 words and 271 idioms, representing the next 15 percent of the frequency lists, comprised vocabulary unit 2, from which were selected all new forms introduced in

TABLE III

IDIOMS OF VOCABULARY UNIT 2* CLASSIFIED ACCORDING TO THEIR USE IN *Les Trois Mousquetaires*, ADAPTED EDITION

	Idioms Remaining from Vocabulary Unit 1						
	Category in Cheydleur Idiom List						
	A	B	C	D	E	F	Grand Totals
Total remaining from Unit 1	100	4	9	26	18	6	163
Total† used in this text	66	3	9	17	14	3	112
Introduced	53	2	8	12	8	3	86
Already known in one meaning; used here in widely different meaning	5		1	2	1		9
Usages‡	1		1	1			3
Offering no difficulty	8	1		3	5		17
Total remaining unused	34	1		9	4	3	51
Offering no difficulty	5	1		3	4		13
Requiring introduction	29			6		3	38
New Idioms	26			4		3	33
Usages	3			2			5
	All Other Idioms of Unit 2						
Total other Idioms of Unit 2	151	8	14	61	37	0	271
Already used in texts of Unit 1	33		2	17	14		66
Total used in this text	58	5	7	18	11		99
Introduced	49	5	5	13	3		75
Usages							
Offering no difficulty	9		2	5	8		24
Total remaining unused	60	3	5	26	12		106
Offering no difficulty	6			5	6		17
Requiring introduction	54	3	5	21	6		89
New Idioms	50	3	5	21	6		85
Usages	4						4

Summary for All Idioms of Unit 2							
Total Idioms of Unit 2							434
Already used in texts of Unit 1						66	
Used in this text: total§						211	
Introduced				161			
Already known in one meaning; used here in widely different meaning				9			
Usages				3			307
Offering no difficulty				41			
Not used in this text: total					157		
Offering no difficulty				30		30	
Requiring introduction				127			127
New Idioms	118						
Usages	9						

Now comprehensible to pupil

*See p. 427 for explanation of the term "Vocabulary Unit 2."

†Second meanings of idioms already familiar in one sense are included in this total if separate entry is made for them in the Cheydleur list. Usages, on the other hand, are excluded in reckoning the total.

‡Slight extensions in meaning, easily comprehensible to pupils without aid.

Les Trois Mousquetaires. Tables II and III show respectively the number of words and idioms from vocabulary unit 2 that appear in this text, and the number remaining to be incorporated in subsequent reading material. It will be observed from a study of Table II that of the total 1350 words of unit 2 vocabulary, 749 appear in *Les Trois Mousquetaires.* Of the 601 not found in this text, 13 have been met in one or more of the first-year texts, 235 are cognates, and 7 are simple variants on known or cognate stems, making a total of 255 that offer no learning problem. This leaves a residue of only 346 words needing regular introduction and systematic repetition. Correspondingly, it is evident from Table III that of the 434 idioms in unit 2 vocabulary, 211 are used in this text, and of the 157 remaining, 30, while they may be troublesome in speech or writing, are not idioms from the reading standpoint and consequently will be comprehensible to the pupil on sight. Thus there remain only 127 of these idioms that require introduction in the usual manner. By combining these two groups of data, it becomes apparent that a pupil upon completion of the reading material of the first-year unit and this first text of the second-year series, is in a position to comprehend all except 346 of the first 2569 words of the Vander Beke list, and all but 127 of the 771 idioms of highest frequency in the Cheydleur idiom list. His time and effort have been concentrated upon acquiring a vocabulary of maximum usefulness for reading, upon gaining a recognition knowledge of those syntactical elements most commonly met in reading, and, since he has built up this vocabulary and obtained this grammatical knowledge, not in order to get ready to read, but *while reading*, he has simultaneously been developing, through actual experience in a bona fide reading situation, that facility in the comprehension of written discourse in a variety of patterns, which is synonymous with reading power.

A COÖPERATIVE ORPHANAGE RESEARCH

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FOR the past fourteen years the Iowa Child Welfare Research Station at the University of Iowa has been carrying on research studies in connection with preschool laboratory groups located at the University. These laboratories, now numbering four, include children from the ages of two to five and represent a very definitely superior group from the standpoint of intelligence.

A year ago it was possible for the Iowa Child Welfare Research Station to enlarge its scope of study of the preschool child to include a group of underprivileged children who are of somewhat lower mental levels than are those in the University laboratories and who are living under controlled variations of environmental influences. This extension laboratory is located at the Iowa Soldiers' Orphans' Home in Davenport, Iowa, and is being sponsored jointly by the Station and the Iowa State Board of Control of State Institutions.

In the early stages of this program, it was recognized that one of the major needs at the Orphans' Home was a more definite educational program for the preschool child. In addition, since the Station was interested in studies relating to the effects of preschool education, a very definite need was felt for preschool groups where the multiple variable of individual homes could be somewhat reduced.

A group of orphanage children under relatively comparable and constant cottage conditions seemed to meet these requirements rather adequately. Consequently, the Davenport coöperative preschool project was established and is, so far as we know, the first preschool to be operated anywhere with an orphanage and a university coöperating.

For the sake of contrast with the level of society which the University preschools represent, it is probably well to mention briefly the background of the orphanage children. All the children in this particular orphanage are dependents and come from neglected homes. Ninety percent of the fathers have the vocational status of day laborers or of semi-skilled laborers. And in addition to that fact, we find that all are from homes which are not self-supporting. The educational status of the parents is low—a few have had a year or two of high school, but a large majority have never gone farther than the eighth grade. And it goes without saying that prior to their residence in the institution, the home sit-

uations of the children have afforded few opportunities for development in any sense of the word.

This coöperative project is sponsored by the Preschool Education Committee of the Station, whose function it was to design the building, decide upon necessary equipment, and set up the research program. It seemed feasible to include a head teacher and two assistant teachers in the teaching staff, all of whom are furnished by the Station and work under the administrative supervisor of the preschool laboratories.

The building as planned by the Preschool Education Committee was built by the Board of Control at a cost of about $10,000. It accommodates half of the preschool age children in the orphanage, while the other half serves as a control group.

The groups have been carefully matched on a number of bases including chronological age, mental age, intelligence quotient, sex, height, weight, sensory defects, nutritional status, and length of residence in the orphanage. Wherever possible, the children have been paired, one member of the pair being in attendance at preschool and the other not. This means that approximately twenty children are in daily attendance at preschool, with a like number in the control group not in attendance.

At the present time a number of research studies using this situation are in progress. All are aimed at determining the effects of preschool experience on the child's development and include such studies as the development of intelligence, language usage, vocabulary, social competence, social behavior, and physical growth. In this latter study of physical growth as related to preschool attendance, the Davenport preschool project offers the unusual opportunity of studying two groups of children under the same food and sleep régime, the one preschool and the other not.

It is hoped that it will be possible to make up for the small number of cases in the original groups by a continuation of the study over a number of years, by the addition of new children from time to time, and by the intensive study of the same children over a longer period of time. Children who have previously been in preschool as well as those who have not will be studied subsequently in connection with later educational progress. Those remaining at the orphanage will be studied in the institution elementary school and those placed in foster homes will also be available for follow-up study.

A description of the two original matched groups is perhaps in order. The three tabulations which follow set forth the relationships of the

various factors of comparison for the two groups. There were twenty-one children in each of the matched groups. These children varied in

AGE, MONTHS

	Number	Cronological		Mental		IQ	
		Preschool	Control	Preschool	Control	Preschool	Control
Mean	21	44.6	44.4	36.2	35.9	82.0	81.0
Median	21	39.0	41.9	38.5	34.4	80.0	80.0
Standard Deviation	21	16.6	16.8	13.2	14.1	12.3	11.6

age from eighteen months to five and one-half years. The mean chronological age as of October 1, 1934 was forty-four months for each group with standard deviations of 16. Mental age and IQ comparisons have been made, using as the standard measures of intelligence the Kuhlmann and the Stanford revisions of the Binet scale. Children under four years of age were given the Kuhlmann-Binet and those over four years were given the Stanford-Binet. The mean mental ages for the preschool and control groups were 36.18 months and 35.88 months respectively, with comparable standard deviations. Mean IQ's for the two groups differed by only about 1 point, the preschool group having a mean IQ of 82.33 and the control group 81.24.

The second tabulation gives the nutritional status of the two matched

Group	Number	Mean	
		Physical Measurement Score	Medical Score
Preschool	18	2.5	3.1
Control	18	2.7	2.8

groups. The children were rated on a five-point scale from two approaches, the medical examination and physical measurements including height, over- and underweight, and chest girth-height index. In both indices the numerical score of 3 was taken as average nutritional status, 4 being somewhat above average and 5 being a markedly superior nutritional status. Likewise, 2 was somewhat below average and 1 was rather markedly below par. Nutritional status as shown by these physical and medical scores was similar for the two groups.

Length of residence in the institution, as shown by the tabulation which follows, shows a mean of 21.8 months for the preschool group and

Group	Number	Mean Months
Preschool	21	21.8
Control	21	18.4

18.4 for the control group, indicating a slightly longer residence in the institution for the preschool group.

The sexes were evenly distributed. The preschool group included twelve boys and nine girls and the control group included twelve boys and nine girls.

Results cannot be given at this time except in terms of general tendencies inasmuch as the project is a long-time study and only one year has elapsed to date. Studies relating to mental growth are being carried on by Dr. George D. Stoddard, Dr. Beth L. Wellman, and the author. Comparisons of changes in mental growth from October 1, 1934, to June 1, 1935, can only be made on twelve children inasmuch as some of the original children were placed in foster homes at the end of the first semester and new ones took their places. Mean comparisons of the two groups show no changes in IQ, as measured by the Kuhlmann and Stanford revisions of the Binet, between fall and spring tests for either the preschool or control group. After nine months of preschool, both the

MEAN AGE, MONTHS

Group	Number	Chronological		Mental		Mean IQ	
		Fall	Spring	Fall	Spring	Fall	Spring
Preschool....	12	39.3	47.3	30.9	38.0	78.8	78.9
Control.....	12	38.3	46.3	29.8	36.6	77.7	77.7

control and preschool groups were given the Merrill-Palmer scale of mental tests. Ten pairs of children matched in the fall of 1934 on the Binet scale and having spring Binet mean IQ's of 79.8 for preschool and 77.9 for control gave on these spring Merrill-Palmer tests mean IQ's of 90.3 and 81.6 respectively. This showed a difference of 8 points in favor of the preschool attendance group.

Central tendencies of the two groups taken as wholes show practically

ATTENDANCE OF PRESCHOOL CHILDREN IN RELATION TO MENTAL GROWTH AND OTHER FACTORS (12 CHILDREN)

Days Attended	Change in IQ, Fall to Spring	Gain in Mental Age, Months	IQ	Chronological Age, Months Fall
61	− 6	4.3	80	26.9
79.5	−11	.9	94	52.0
88	− 3	5.7	85	28.1
99	−22	1.2	94	20.5
108	− 6	4.0	76	26.6
121	+17	13.5	68	39.0
130.5	+ 7	11.5	83	61.1
133.5	+ 7	10.3	79	49.7
135	+ 9	12.8	75	67.7
139.5	+ 4	7.1	66	37.1
140.5	+ 4	8.0	80	30.4
146.5	+ 1	5.7	66	32.1

no differences in growth of intelligence, yet an analysis of factors within the groups show interesting changes in relation to length of preschool attendance, chronological age differences, and levels of intelligence as shown in the following tabulations. The amount of attendance at preschool shows relationship to change in IQ; those who gained in IQ had the better attendance records, while all who lost in IQ had the poorer attendance records.

For the groups above the mean fall IQ, both preschool and control, there is a mean loss in IQ on the spring examination. Groups below the mean fall IQ, both preschool and control, show a gain in IQ

MEAN CHANGE IN IQ FROM FALL TO SPRING

IQ Groups	Number	Preschool	Number	Preschool
At and above fall mean	7	−3.45	4	−2.25
Below mean	5	+5.0	8	+1.12

on the spring examination, with the preschool group's gain being decidedly larger than the gain for the control group, + 5.0 as against + 1.12. There was a tendency in both preschool and control groups for the younger children to lose somewhat in IQ and the older ones to gain.

Several studies relating to social behavior and personality development are being sponsored by different staff members. Thinking that some interesting information concerning home influences might be indicated by a study of the preschool child's behavior during his first days at school, a study of initial adjustments has been projected by Dr. Ruth Updegraff. It compares a group of orphanage children with children living in homes which are above the average, and also compares initial behavior with that occurring later in the school year. The present report covers only the orphanage group. Studies on children in the University preschools are not completed to date. Conducted by the method of controlled observation used by trained observers, information was obtained concerning twenty-eight patterns of behavior which fall under the headings of emotional behavior, reactions to others, and the use of equipment. Observed in October, February, and May, the behavior of the orphanage children seems to have changed in the following respects from October to May—less crying, less sulking, less laughing, less watching, more advances made to both children and adults, more advances accepted from teachers and children, more conversing with other children, less interference with the rights of others, less aimless activity, activities continued longer, more spontaneous verbalization.

Dr. Harold M. Williams is carrying on a study of social competence

using the Vineland Social Maturity Scale. This scale is being given both groups at semi-annual intervals. In it an attempt has been made to provide an instrument for the measurement of the extent to which "children show a progressive capacity for looking after themselves and for participating in those activities which lead toward ultimate independence of adults."

In the spring test, after nine months of preschool, marked differences in social development appear in favor of the preschool group. With twenty-three preschool children and twenty-two control children having mean chronological ages of 4.03 and 4.17 years respectively, the preschool had a mean social age of 4.4 years as against that of the control group of 3.16, showing a difference of 1.24 years social age in favor of the preschool group. The mean social quotient for the preschool group was 109.2 as against 79.5 for the control group, showing 29.7 points superiority for the preschool group. This difference cannot be accepted entirely without qualification, since changes in personnel of the two groups studied resulted in a seven point difference between mean IQ's of the two groups in favor of the preschool group. However, with chronological age the same for both groups this difference in social maturity is markedly higher than the slight intelligence differences noted.

As an additional study of social behavior, Dr. Updegraff has been using the Berne rating scales as well as several of the Berne experimental situations. Comparisons between preschool and control groups are being made. This study is in process and results are not available at this date.

A study of dominative and of integrative behavior of children of preschool age when paired in an experimental play situation has been made by Dr. Harold H. Anderson. Seventeen children enrolled in the preschool and thirteen from the control group have been included. In the experimental play situation two children from the same group were allowed to play together for five minutes in a small observation room. Each child was paired with five other children of his group. Domination scores include commanding, forbidding, criticizing, reproving, and forceful attempts to get materials from the companion. Integration scores include verbal requests, suggestions, compliance with requests and suggestions, and a group of actions designated as showing a common purpose. Submission scores include instances when the companion was successful in commanding the child's behavior or in securing materials from him by force. Scores were obtained in June and again in August, 1935. Preliminary statistical analysis shows that in June the control

group was 14 percent more active than the preschool group when domination and integration scores were combined. In August the preschool group was 13 percent more active than the control group. In June the preschool children showed almost twice as much domination and only five-sevenths as much integrative behavior. In August the preschool group showed 50 percent more dominative behavior than the control group and practical identity in integration scores. From June to August the preschool group showed no change in either domination or integration scores, while the control group in the same time showed a drop of 26 percent in integrative behavior and an increase of about 7 percent in domination.

Miss Marjorie L. Page, under the direction of Dr. Wellman, is studying one particular aspect of social behavior, namely ascendance. This particular aspect has been measured repeatedly in both the preschool and the control groups in an attempt to understand the effects of preschool experience in this area. Repeated measurements may indicate not only changes in gross ascendance scores but also changes in the frequency of specific patterns involved. Detailed analyses of data are not available at this date.

Language development is being studied from several points of view. A study of differences in language development is being made by Miss Mary McFarland under the direction of Dr. Wellman, using the Williams' modification of the Smith vocabulary test. After nine months of preschool attendance, the preschool group had a mean vocabulary of 768 words as measured by the test, and the control group had a mean vocabulary of 691 words. The groups in this comparison were restricted to fifteen children each, almost exactly matched on chronological age and mental age on the spring test.

Data obtained by Dr. Williams including original phonetic transcription of the children's conversations are now being transmuted into a more convenient point scale of language achievement. A new scale is being made for the measurement of general development in the expressive use of language. This scale includes measures of command over speech sounds, intelligibility in word usage, and level of organization in sentence construction. Quantitative statements on these aspects of development are not available at this date. Language studies as such show marked retardation in language for both groups, increment of growth being very slow for both groups with a slight advantage in growth for the preschool group.

As has been previously indicated, most of the studies being carried on in connection with this orphanage preschool project are long-time projects, and since only one year has elapsed since the beginning, conclusions are not in order at this time. However, a few tentative summary statements may be given:

1. While measures of central tendencies show no change in intelligence over a nine-months period for either preschool or control group, yet changes within the groups show that combinations of lower I. Q.'s, higher chronological age, and greater preschool attendance make for greater gains in intelligence.

2. After nine months of preschool, a marked difference between the preschool and control group was found in social maturity. This difference was in favor of the preschool group.

3. All studies where differences are shown between preschool and control groups rather consistently favor the preschool group.

THE PREDICTIVE VALUE OF THREE KINDS OF TESTS FOR A COURSE IN UNITED STATES HISTORY

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THE purpose of this investigation is to determine the value of the Stone Reading Test,[1] the Otis Group Intelligence Scale,[2] Advanced Examination, and the Wesley Social Terms[3] as instruments for predicting achievement in United States history. These tests were administered during the first week of the 1933-34 school year to 160 pupils in the Washington High School of the East Chicago Public Schools. One instructor taught the five eleventh-grade classes of which these pupils were members. The unit method was used but was modified in that no attempt was made to have all pupils attain a predetermined level of mastery.

As indicated in Table I, a record was kept of each pupil's achievement for four phases of the work for each unit. The assimilative work consisted of both oral and written answers to exercises which were furnished for each unit on mimeographed worksheets. The assimilative tests were combinations of true-false, multiple-choice, ranking, and matching questions. The recitation consisted of a summary written without reference to either books or notes. By means of objective scoring, numerical scores were obtained for the assimilative papers and the summaries. The raw scores for these three phases were converted into comparable scores having a mean of five and a standard deviation of one. For the fourth phase, optional work, one point was allowed for each hour the pupil was estimated to have expended on the projects he completed. At the end of the semester, the total score on each of the phases, and a total achievement score for the semester were computed. These are shown in the last column of Table I.

TABLE I

METHOD OF OBTAINING PUPILS' SCORES FOR ACHIEVEMENT

Pupil—John Petho	Unit					Total
	1	2	3	4	5	
Assimilative Work	6	8	8	9	9	40
Assimilation Tests	5	8	7	4	10	34
Recitation (Summary)	10	9	10	6	7	42
Optional Work	8	8	3	5	6	30
Total—Four Phases	29	33	28	24	32	146

[1] Stone, C. R., and Murphy, L. C. *Junior High School Test: Stone Series of Narrative-Reading Tests.* Bloomington: Public School Publishing Company, 1922.
[2] Otis, A. S. *Otis Group Intelligence Scale, Advanced Examination, Form A.* Yonkers-on-Hudson, New York: World Book Company, 1918.
[3] Wesley, E. B. *Wesley Social Terms.* New York: Charles Scribner's Sons, 1932.

The correlations between the scores on the three predictive tests and the five achievement scores were calculated and are given in Table II. The raw scores on the Otis and Wesley tests were used for this purpose, but as the Stone test measures rate of reading and comprehension separately, the scores for each of these abilities were transmuted into comparable scores; then each pupil's score for rate of reading was multiplied by his score for comprehension, and the product, thus obtained, was used as a measure of his reading ability.

TABLE II

CORRELATIONS BETWEEN THE PUPILS' SCORES ON THE PREDICTIVE TESTS AND THEIR SCORES FOR ACHIEVEMENT IN THE SEVERAL PHASES OF THE SEMESTER'S WORK

Cumulative Score	Stone	Otis	Wesley
Assimilative Work	.275	.438	.477
Assimilation Tests	.447	.560	.605
Recitation (Summary)	.392	.538	.563
Optional Work	.129*	.376	.458
Total—Four Phases	.387	.592	.652

*Not Significant.

The relationship which existed between those various scores was studied by means of partial correlation and multiple correlation. The intercorrelations for the predictive tests are: Stone and Otis, positive .612; Stone and Wesley, positive .528; and Otis and Wesley, positive .701. The partial correlation ratios between each of the three predictive tests and the total achievement scores, with the factors measured by the other two predictors held constant, are: Stone, negative .100; Otis, positive .242; and Wesley, positive .413. By multiple correlation, the correlation between the total achievement scores and the best possible weighting of all three predictive test scores is .679, and between the total achievement scores and the Otis and Wesley scores is .679.

The value of the three tests for predicting achievement in United States history may be summarized as follows:

1. The Wesley Social Terms test is a significantly better predictor than either the Stone Reading Test or the Otis Group Intelligence Scale.
2. The Otis and Wesley tests have individual value as predictors while the Stone test has no predictive value not found in the other two tests.
3. The Wesley Social Terms test is practically as good for prediction

as the best combinations of the three tests which were used for the experiment.

4. The Otis Group Intelligence Scale, the Wesley Social Terms test, or a combination of these two tests has sufficient predictive value to justify its use for predicting the achievement of groups.
5. With the use of these tests, it would have been possible to predict the final level of achievement more accurately for total scores, assimilation tests, recitation or summary, assimilative work, and optional work in the order named.

EDITORIAL

THEORY AND PRACTICE

ADVANCES along lines of science, invention, and educational theory are always much more rapid than their general application to human welfare. This discrepancy in itself is a problem for research. Within general limits a slow assimilation of new techniques and ideas has certain benefits in allowing time for further verification, and sifting out the possible fallacies and weaknesses. Whenever reform or change occasionally happens to get an unusual impetus it is frequently followed by a return to earlier practices and a conservative reaction.

With these general trends in mind there is still great need for a more rapid assimilation of new facts, techniques, and procedures in many lines of activity even in education. The chief problem becomes, How may these be achieved?

One of the greatest needs for a better general application is to interest those engaged in creative work in how the knowledge may be marketed. The research worker too often is content to remain in his laboratory and give little thought how his findings may be effectively implemented. If this proves to be relatively ineffective, the larger social forces should provide agencies of salesmanship, propaganda, or whatever is necessary for the task at hand. The problem is not simple.

A good illustration of confusion in our democratic type of government is use and abuse of the modern motor car. The auto manufacturer claims that the public demands high speed in highly powered cars. But 35,000 citizens are killed and hundreds of thousands are injured annually, with economic losses of property, reduced earning power of the afflicted running into millions of dollars each year. The manufacturer declares that better education of the driver and pedestrian is the answer. Elaborate research is being conducted in individual differences in reaction time, the amount of comprehension, the probability of distraction—all of which tend to show that a certain lower percent of the population is not qualified to compete under such strenuous conditions. The problem then shifts to legislation for the regulation of what segments

of the population shall be permitted to drive (or to walk) and, in turn, is the denial of such rights a function of a true democracy?

In other fields we are equally sterile of solutions. With ten million handicapped children, how can more than one in every ten be given the proper special educational facilities which they do not receive at present? Specialists in these fields possess plenty of facts as to needs but are baffled by higher costs, a scattered distribution, and lack of trained teachers. Another challenge is tracing crime back to its roots in childhood and to reverse the balance of two or three billions spent annually for education with more than thirteen billions for crime prevention rather than for remedy. If changes are to be effected, what procedures must be developed, and how may they be put into effect?

In general fields of education application of social needs lags behind through conservatism in the curriculum. Laws of learning, effects of propaganda, and knowledge of child psychology make possible marked changes from present procedures, but changes take place slowly. Possibly it is well, but if not, as yet we don't know what to do about it although we probably should.

HARRY J. BAKER

REVIEWS

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GOOD, CARTER V., BARR, A. S., and SCATES, DOUGLAS, E. *The Methodology of Educational Research* (New York: D. Appleton-Century Company, 1936), pp. xxii + 882. $3.75.

Two important inferences may be drawn from a consideration of the latest book on educational research: (1) that the return to sanity in education is under way, and (2) that education has been recognized as what it really is: the most comprehensive science. It is good to get back to normal temperatures, and out from under the swing boys, who with inflamed eyes and roughened tonsils have been spreading their own affliction, the new social orditis among the profession. The unimpassioned, rational outlook found in *The Methodology of Educational Research* is an excellent antidote for the virus and venom of the clan that has professed a burden of soul for humanity since the depression and the recognition of Russia.

The book is intended for teachers, supervisors, administrators, and heads of research departments in service; and for graduate students in colleges and universities. The authors emphasize their belief that teachers should participate in research on the job as a means of increasing their own efficiency and of aiding in educational planning. They express opposition to the notion that professors and supervisors should do the thinking for the schools, while teachers center their attention alone on the work of the classroom. To make research effective in the process of education is one of their main aims.

The treatment is more comprehensive than is found in other texts on the same subject. The 882 pages consist of sixteen chapters and an appendix of about 100 pages. The first four chapters take up the nature of scientific thinking, the selection of a problem, the preparation of bibliography, and the formulation of hypotheses. The next six chapters are concerned with specific methods of research, which are classified as historical, normative-survey, experimental, and the causal-comparative. The last includes four sub-methods: (1) the causal-comparative as such, (2) the correlation method, (3) the case-study method, and (4) the genetic method. The final division covers such topics as interpretation of data, the research report, the evaluation of results, and the training of research workers. There is a brief summary chapter of six pages.

"This book presents a reasonably complete analysis of the literature dealing with the methodology of educational research," say the authors. This is a modest statement, for in truth, the book is exceptionally well documented. The references are broad enough to take the reader outside the narrow field of technical education into the field of science. A selected list of references is found at the end of each chapter. A limited number of these have been marked by as-

terisks to emphasize their special relation to the topic under discussion. The total number of pages of references runs close to 100; the smallest number in any chapter is two pages; the largest number is sixteen pages. From two to ten "teaching exercises" also accompany each chapter.

The general plan may be seen from an examination of the two hundred page section on the normative-survey method. There is first given a review of the survey testing studies in which this method has been used, by way of illustration (pp. 297-324). This is followed by a review of studies in which the questionnaire method was used (pp. 324-343). The third topic is entitled "Studies Employing Documentary-Frequency Procedures" (pp. 343-374). The general subject is carried forward to Chapter VIII with "Interview Procedures," (pp. 377-390); "Observational Procedures," (pp. 390-409); "Survey-Appraisal Procedures," (409-476); and ends with a summary statement, (pp. 476-478).

The Methodology of Educational Research marks an advance in several respects. It is the most thorough-going and detailed text in the field. The use of concrete illustrative material to reveal method is another valuable characteristic. This makes much clearer than definition or description the processes which experienced workers have found it desirable to apply. Finally, the bibliography is extensive, well selected, and aptly used.

There are several special points which should be mentioned. The organization is clear; the style is well suited to the subject under consideration. The authors have set a fine example of freedom from bias and prejudice; there is no intrusion of pet ideas, and no unfair criticism of any technique or method. The book is well balanced, practical, inclusive, and scholarly. It should meet with general approval.

Stanford University

JOHN C. ALMACK

BURTON, WILLIAM H., and OTHERS. *Children's Civic Information, 1924-1934.* Southern California Education Monographs No. 7 (Los Angeles: University of Southern California Press, 1936), pp. xxii + 307. $1.50.

This monograph originated in a suggestion of the late Professor S. C. Parker of the University of Chicago that an investigation of the nature and extent of civic information possessed by elementary school pupils would be valuable as a preliminary to junior high-school civics. The author's inquiry was at first limited to sixth-grade pupils in the public schools of Chicago. The question then arose whether the findings in other kinds of cities and communities would be similar. In consequence, Professor Burton and his associates extended the investigation to include urban and rural pupils in the public schools of Salem (Oregon), North Dakota, Cincinnati (Ohio), Peoria (Illinois), and the city and county of Los Angeles (California). The inquiry was next broadened to include the changes in civic information beyond the sixth-grade, especially in schools in which organized courses in civics were not taught. Finally, a comparison was made of children's civic information over a decade (1924-1934).

The investigation was carried on by means of a test supplemented by oral interviews. The test, which was derived from an analysis of such materials as textbooks, courses of study, and standard works in the field, consisted of ninety-six items* classified into three sections

*A test of 120 items was given in North Dakota and Los Angeles county.

corresponding to the types of material used, namely, political, economic, and sociological. In its preliminary and final forms the test was given to a total of 8136 pupils as follows: Chicago, 2876; Salem, 249; Peoria, 653; North Dakota, 696; Cincinnati, 2645; Los Angeles (city and county), 1287. Oral interviews were carried on with several hundred pupils in order (1) to use a number of items not included in the test, (2) to secure additional evidence on the information and reactions of the pupils, and (3) to find the sources from which the pupils derive their knowledge.

The most valuable results of the inquiry, according to Professor Burton, "are (1) the facts regarding the actual civic information possessed by different groups of typical American children in different regions and of differing economic levels, and (2) the explanation of differences, if any, between groups" (p. 191). Of outstanding significance on the first of the foregoing results is the lowness of the average scores, even the highest of the various groups understanding barely half of the items in the test (a conclusion verified by the Hill *Civic Tests*, which were given to more than 50,000 pupils in all parts of the United States). On the second of the results mentioned above "an astonishing consistency" is shown in the average total scores for the several groups. Such differences as appear seem to be due primarily to differences in economic status and, in lesser degree, to differences in the size of communities and between rural and urban environments. "The superiority of the boys was regular and consistent throughout the test" (p. 267), being especially marked on the political and economic items. A comparison of comparable scores of 1924 and 1934 shows that "no change of any sort has taken place in ten years in the average total amount of information possessed by sixth-grade children in average American communities" (p. 272), a result which may indicate the inefficiency of much of the recent emphasis on current events in the middle grades, as well as the need for systematic civic instruction in the grades mentioned.

Professor Burton's monograph is an outstanding example of scholarly research, both in the method of the investigation and in the significance of its results. It is hard to understand how curriculum builders, if familiar with his findings, could fail to see the suitability of and the need for definite and appropriate civic instruction in the middle grades.

University of Chicago

HOWARD C. HILL

CUFF, NOEL B. *Educational Psychology* (Louisville: The Standard Printing Co., Inc., 1936), pp. vi + 387. $2.50.

The novel feature of this textbook consists in the selection of topics for discussion. Seventy topics were submitted to professors of educational psychology and the fifteen securing a fifty percent vote or over, form the chapter headings of the book. Each chapter is followed by a list of questions and problems—essay and new-type, the latter mainly true-false and matching. These examinations would not meet with the approval of Lindquist or Ben Wood. The exposition is clear though so condensed as to become untrue at times. The author has borrowed freely, but the borrowings, owing to poor documentation, are not always acknowledged. This criticism applies both to diagrams and to the quotations which begin with "one writer." It would have been just as easy to name the writer and would have been more

honest. The book is more suitable for elementary classes than advanced ones.

University of Toronto

PETER SANDIFORD

JUDD, C. H., with the coöperation of BRESLICH, ERNEST R., MCCALLISTER, J. M., and TYLER, RALPH W. *Education as Cultivation of the Higher Mental Processes* (New York: The Macmillan Company, 1936), pp. vii + 206. $2.00.

In this work, which was financed by the Carnegie Corporation and the Carnegie Foundation, Judd continues a line of argument about education that he has held for more than thirty years, namely, that education is not the cumulative effect of minor learnings, but the formation of generalizations of experiences and the discovery of valuable relationships among the facts of knowledge. Tyler, McCallister and Breslich each contribute a chapter; Judd is responsible for the other six and for the coördination of the various parts. Needless to say, the points made by Judd are of the greatest importance for education, and the demand of the Chicago school for thoroughness in learning is one that should be taken to heart.

The higher mental processes, according to Judd, are those which call for conscious effort. Memory is placed on a lower plane than the application of principles and inference. While agreeing with the finding, we do not admit that memorization demands less conscious effort than the application of principles; it often demands more. Thorndike's reaction hypothesis and methods of analysis receive a severe drubbing, but the irony of the situation is seen when a careful examination of the studies reported by Tyler, Breslich and McCallister shows that they have used Thorndikean methods of detailed analysis to prove that these same methods are sadly inadequate. The best chapter is the last—Applications of the Psychology of the Higher Mental Processes. Here Judd shows his particular genius. Like Stanley Hall, he frequently arrives at right conclusions from wrong facts, and only geniuses can do that.

University of Toronto

PETER SANDIFORD

MACDOUGALL, WILLIAM A. *Techniques of Teacher Self-placement* (Grand Forks, North Dakota: Holt Printing Company, 1935), 243 pp. $2.50.

The author expresses the hope that this publication will be used as a reference book by teachers who wish to locate vacancies and to convince prospective employers that they have desirable qualifications for these vacant positions. He gives much attention to letters of application, the application photograph, effective procedures in personal applications and in personal interviews, letters of recommendation, and contents of data sheets which teachers inclose with their applications. In addition, rather complete chapters give very valuable information regarding private teachers' agencies, accrediting associations, city school requirements for new teachers, the employment of teachers in Indian schools and in the outlying possessions of the United States, and placement bureaus conducted by teachers' associations and state departments of education.

The many suggestions to teachers hunting employment are based upon the analysis and evaluation of a considerable amount of material including 200 teachers' letters of application, four thousand letters of reference regarding teachers, 940 letters of inquiry written by teachers, 3075 data sheets accompanying letters of inquiry or letters of application, 224 ap-

plication blanks used in large city school systems, and complete material from 140 commercial teachers' agencies. From the above data with the use of judges, the author indicates desirable and undesirable types of pictures, good and bad letters of application, effective and ineffective data sheets, and wise and unwise letters of inquiry. He also sets up standards for letters of recommendation, although he does not show how these standards are to be used by the applicant.

Some of the few suggestions for securing positions are of doubtful value, but in general they should be very helpful to teachers not only as a means of securing positions but as definite helps toward growth in personal effectiveness. The positiveness of the language makes the book more interesting, but it may mislead the young applicant into thinking that the judgments are authoritative facts.

Apparently the author considers letters of reference as letters of recommendation rather than as letters of evaluation. He states "The purpose of a letter of recommendation is to assist, not to hinder, those seeking employment" . . . "No teacher should have letters of recommendation sent until they are reasonably certain what is in the letter. It is the right and duty to protect himself against prejudiced, hasty, and careless judgments. It is true that there is a demand that this information be 'strictly confidential.' This is for the benefit of the agencies and the employing officers, certainly not for the teacher's benefit. The teacher should use every possible means to find out what is in the letters of recommendation. The law of self-defense is universal. The teachers should not be so conscientious that his conscience prevents him from finding his enemies. The teacher is not advised to be dishonest; he is just advised to be wise for his own benefit."

The only basis upon which letters of recommendation can be of use in assisting those seeking employment is that the writer considers the interests of children ahead of the interests of the applicant and that the recommendations are of real service to the employer in determining to the best of his ability the real qualifications of applicants. Since all open letters carried will be complimentary, most employers are not only disinterested in looking at them, but even inclined to question the judgment of a candidate who doesn't see the usefulness of such letters in giving the employer an honest picture of the applicant's abilities. Confidential letters of references should assist able teachers and hinder the incompetents.

The dangers of disastrous self-placement are not discussed, although many exist. Occasionally a promising teacher's professional life is wrecked because he sells himself into election to a position and into acceptance of it when the odds are clearly against his succeeding in the position, due to the situation itself or to his lack of training, lack of ability, or lack of interest in the duties required. Young teachers are sometimes encouraged by employers to gamble unwisely in undertaking positions for which they are not at all qualified. A discussion of this problem would enhance the value of this book.

As a means of helping teachers to locate positions for which they qualify and to adequately get their qualifications clearly before employing officials, this book is a definite contribution to education. It should be helpful to teachers in training who wish to develop themselves personally. Its value to society will depend upon the proportion of those teachers making use of its suggestions who are really capable teachers. If able teachers

who are now inept at finding vacancies and presenting their qualities are able to utilize this book in making a better presentation of their qualities, then society benefits greatly from this service by which the best teachers are selected and the less qualified left unemployed. There is some danger that poorly qualified teachers using this book to develop skills in finding and securing teaching positions may get elected to positions at the expense of better qualified candidates and at the expense of the children to be taught.

Ohio State University

EARL W. ANDERSON

GARRISON, S. C., and GARRISON, K. C. *Fundamentals of Psychology in Secondary Education* (New York: Prentice-Hall, Inc., 1936), pp. xx + 599. $2.80.

This book is intended to fill the current need for an authoritative treatment of the psychology of secondary education. It is divided into three parts: first, a general section, entitled "Progress Towards Maturity," which discusses such topics as the mental, physical, and social development of the high school pupil; second, a section dealing with the psychology of each of the more important high school subjects; and a concluding section on the development of personality.

The authors have chosen completeness in preference to selection. They accept and report rather than criticize. As a natural consequence, their book tends to be monotonous and imitative rather than bright and original.

Also, unfortunately, the book is not, in the reviewer's judgment, very well written. The sentence-structure is choppy, the style cumbersome and hard to follow. The use of language lacks precision.

Nevertheless, since the book summarizes every important contribution to the psychology of the secondary school, and since it is extremely carefully organized and integrated, it should be a very useful source-book or classroom text.

University of Toronto

M. A. CAMERON

DUNBAR, H. FLANDERS. *Emotions and Bodily Changes. A Survey of Literature on Psychosomatic Interrelationships, 1910-1933* (New York: Columbia University Press, 1935), pp. xv + 595. $5.00.

This book presents a comprehensive, critical survey on the literature dealing with "psycho-somatic" relationships as indicated by a bibliography of 2,251 titles. Research work in many fields carried on in the last 30 years has given some indication of the complex interrelationships existing between functional and organic disorders, so that the sharp dichotomy that was once believed to exist between these two types of malfunction is disappearing. The purpose of Dunbar's book has been to summarize and synthesize the work bearing on this problem from the fields of neuro-anatomy, physiology, psychology, psycho-analysis, and medicine.

The book is divided into three main parts: (1) orientation and methodology, (2) organs or organ-systems, and (3) therapeutic considerations and concluding remarks.

The first part of the book will undoubtedly be of most value to the general reader since in this part the author summarizes and synthesizes in skillful fashion the material bearing on the "organismal" point of view, sketches the "organic bias" and "psychic bias" bearing on the problem of illness, and criti-

cally evaluates the usefulness of the existing methods of measurements.

In the second part of the book, the author summarizes the material as it deals with each of nine different organs and organ systems; nervous system, musculature, endocrines, general metabolism and heat regulation, cardiovascular system, respiratory system, gastro-intestinal system, genitourinary system, special sense organs, and skin. This part consists mainly in summarizing recorded observations and facts in contrast to the first part of the book which is more theoretical in nature. It is an invaluable digest and summary of our existing information on the "psycho-somatic" relationships as they bear on each of these organs or organ systems. This portion of Dunbar's book is perhaps beyond the range of interest of the average reader and will appeal primarily to the research worker and technician.

The third part of the book is a general summary of the material. The value of and emphasis on psycho-analysis as indicated by the author is noteworthy.

The importance of this book, and the service which Dr. Dunbar has done in compiling it can hardly be overestimated. It will no doubt stand for many years as a landmark in the tremendously complicated and interrelated fields which attempt to deal with the problem of "psycho-somatic" relationships.

University of Wisconsin

H. F. HARLOW

TRETTIEN, AUGUSTUS W. *Why We Feel That Way: An Analysis of the Human Emotions* (Boston: The Stratford Company, 1935), pp. vi + 452. $3.00.

The title of the book might indicate that it is a popular treatise designed to explain to the layman the fundamental mechanisms of personality. Instead the book is a labored, inaccurate, and rambling exposition of the thesis that, "When man takes time enough to become acquainted with himself sufficiently to know that he has a visceral system . . . he may be induced to utilize his powers to his own best advantage and control."

Knowledge of the visceral system is imparted by frequent references to Crile's work on the effects of strong emotions and Cannon's work on homeostasis. These valuable references are over-balanced by inaccurate statements concerning the James-Lange theory, the functions and importance of the glands of internal secretion, and the role of the vitamins.

Concerning the origin of emotions themselves, the reader is left in doubt as to whether they are instincts, racial memories, the result of conditioning (which is never adequately explained), or endocrine upheavals. Since no clear picture is given either concerning the origin or nature of the emotions, little of value can be said concerning their control. What the author recommends is physical health, moderation, open-mindedness, and a complete change of our present economic system.

University of Wisconsin

H. F. HARLOW

SHROPSHIRE, OLIVE E. *The Teaching of History in English Schools*, Contributions to Education, No. 671 (New York: Bureau of Publications, Teachers College, Columbia University, 1936), pp. ix + 189. $2.10.

The school people of the United States should welcome this significant portrayal of the teaching of history in the schools of England. Never before has there appeared in this country a volume on this subject based primarily on unprinted

sources. Miss Shropshire has done a conspicuous service to all those who are interested in the teaching of an important subject in a country that has made so much history.

During her stay of almost a year in England, the author collected information on a number of aspects of the teaching of history, chief among which were the present-day attitude towards history as a school subject, history in elementary education, history in secondary education, and history in the professional preparation of teachers. To each of these the author devotes a chapter.

In the discussion of the present-day attitude towards history as a school subject the point is made clear that, while there are many devotees of history at the present time in England who claim for it a host of values, because of the prevalent belief in mental discipline, history as a school subject is barely respectable. Those who teach the subject—even history specialists—speak of it in an apologetic manner. Because of the fact that history is classed as one of the modern subjects, there exists a belief that no rigorous training results from studying it. Even some history masters believe that the study of history "makes boys fluffy-minded."

In the early pages of the chapter on history in elementary education the author briefly portrays the long struggle of history to secure a place in the program of studies on this level of instruction, a place that was not securely won until 1902, since which time the subject has been taught in practically all of the elementary schools. In the latter part of this chapter a word picture of history in these schools today is presented. Such items as aims, methods, syllabi, textbooks, time allotments, equipment, and teachers are considered in some detail.

The treatment of history in secondary education is similar in form to that accorded history in elementary education, the chief difference being in length—85 pages of the former, and 31 pages of the latter. Most of the discussion of history on this level of instruction is concerned with its present-day status in individual schools, the hard-fought battle for introduction into the curricula of secondary schools being briefly portrayed in the first few pages. In the discussion of aims of teaching history on the secondary level the readers attention is called to the prevailing ones such as "to arouse an interest in history, to teach a method of work, to train the ability to weigh evidence and to develop the power of balanced judgment." In the matter of scope it is shown that in but a few schools is there a systematic teaching of the subject beyond 1914. So far as method is concerned there is much uniformity, the lecture method being held in great esteem. The textbooks, while inferior to those used in the elementary schools, are gradually improving in quality. Reading and non-reading laboratory-library equipment is rather meager. On the whole the picture the reader gets in this chapter of the teaching of history in the secondary schools of England today is certainly not an optimistic one.

History in the professional preparation of teachers is discussed in the last main chapter. The treatment is in terms of the training of elementary teachers and training of teachers for the secondary schools. Teachers on both of these levels of instruction seem to be well prepared in subject matter, especially those on the secondary level. The professional training of the elementary school teacher is given in connection with the academic work, while that of the teacher in the secondary school is given after the aca-

demic training has been completed. There still exists in England the attitude once prevalent in this country, that professional training for secondary school teachers is superfluous.

The teacher of history who is looking for ways and means of improving his work will find very little in this volume that he will wish to incorporate into his system of teaching. The value of the work is in the information it contains and not in the specific aids to those who wish to improve the present status of their work.

University of Chicago

R. M. TRYON

The Prognostic Value of University Entrance Examination in Scotland. Publications of the Scottish Council for Research in Education, No. IX. International Examination Inquiry (London: University of London Press, Ltd., 1936), pp. ix + 197. 5/-net.

Volume IX of Publications of the Scottish Council for Research in Education is an interesting study of the predictive value of two important criteria for admission to Scottish universities. This study, which was financed by the International Institute of Teachers College, Columbia University, carries on the tradition of careful and painstaking investigation for which the Scottish Council is justly famed.

Candidates are admitted to Scottish universities via University Preliminary (Entrance) Examinations, or via Secondary School Leaving Certificate Examinations, or via a combination of the two. In 1928, 56 percent of the 2844 students entering Scottish universities were admitted solely on Leaving Certificates, and 9 percent partly by Leaving Certificates passes and partly by Preliminary Examinations passes. In point of numbers, therefore, the Leaving Certificate is an important means of admission to Scottish universities.

Both these entrance examinations are made up wholly of the traditional type of "subjective" written examinations which prevailed in the United States until recently when they began to be supplemented by various types of "objective" tests of aptitude and of subject matter achievement.

Omitting details, the general indications of this study are in consonance with studies made of the same types of college entrance examinations in the United States. Correlations between entrance examinations and measures of success in Scottish universities range, in individual subjects, as high as 0.70, but the average is well below 0.50. So many of the correlations are in the neighborhood of 0.30 that the investigating committee calls attention (on page 187) to the fact that the coefficient of alienation for a correlation of 0.30 is 0.95, which means that the error or prediction is approximately 95 percent as great as the error of pure chance.

In the last sentence of the book, the Scottish Committee makes this important recommendation: "As none of the entrance examinations considered in this investigation is devised to select students who are likely to succeed in special University courses, but merely to guarantee a certain standard of general education, the feasibility of applying some further specific prognostic test or tests should be considered."

Columbia University

BEN D. WOOD

RESEARCH ABSTRACTS and BIBLIOGRAPHIES

Address all communications relative to research abstracts and bibliographies to A. S. Barr, University of Wisconsin, Madison, Wisconsin.

BULLETINS

BLATZ, W. E., and GRIFFIN, J. D. M. *An Evaluation of the Case Histories of a Group of Pre-School Children*, Child Development Series, No. 6 (Toronto: University of Toronto Press, 1936), pp. 24.

A comparative study of the case histories of 60 problem and 60 non-problem cases, chosen from a group of pre-school children in St. George's School for Child Study, University of Toronto.

EDWARDS, NEWTON, and OTHERS. "History of Education and Comparative Education," *Review of Educational Research*, VI (October, 1936), pp. 357-456.

Contains papers on the History of Education in the U. S., Canada, and Europe; also one section on Comparative Education; Bibliography.

GROVES, WILLIAM C. *Native Education and Culture Contact in New Guinea*, Educational Research Series, No. 46 (Melbourne, Australia: Melbourne University Press, 1936), pp. 179.

Contains a discussion of the culture contact situation in New Guinea and the influence of education upon it. Bibliography.

HOLZINGER, K. J., and SWINEFORD, FRANCIS. *Preliminary Report on Spearman-Holzinger Unitary Trait Study*, No. 9. Chicago Statistical Laboratory, Department of Education, University of Chicago (1936), pp. 1-23.

The authors present report No. 9 of the Spearman-Holzinger Unitary Trait Study. Three hundred thirty-five cases from the Mooseheart materials were selected and forty-one tests which appeared most reliable were used. This report is intended as a record of the statistical analysis leading to the final pattern.

MERSEREAU, E. B., DAVIS, R. A., and MILLS, H. H. *Directed Observation and Supervised Teaching in Secondary Schools* (New York: Farrar & Rinehart, Inc., 1937), pp. 107.

The authors have prepared a manual containing units of study to be used by practice teachers in teacher training institutions as an aid in the development of self-confidence and control. Materials and exercises to accompany a course in student teaching are provided.

MILES, WALTER R. *Psychological Studies of Human Variability*, Psychological Monographs XLVII, No. 2 (Princeton, New Jersey: Psychological Review Company, 1936), pp. 415.

A commemoration volume in honor of the distinguished service of Professor Raymond Dodge, Yale University, containing papers from friends, associates, and former students.

SMITH, H. L., and PAINTER, W. I. "Bibliography of Literature on the Teaching of English," *Bulletin of the School of Education*, Indiana University, XIII (Bloomington, Indiana: Bureau of Coöperative Research, Indiana University, December, 1936).

An annotated bibliography of 3321 titles.

STRANG, RUTH. *Every Teacher's Records* (New York City: Bureau of Publications, Teachers College, Columbia University, 1936), pp. 48.

The author presents records for the use of the teacher in understanding individual children. Bibliography.

EDUCATIONAL ADMINISTRATION AND SUPERVISION

ARTHUR, GRACE. "A Study of the Achievement of Sixty Grade 1 Repeaters as Compared with that of Non-repeaters of the Same Mental Age," *Journal of Experimental Education*, V (December, 1936), pp. 203-206.

From a study of repeaters and non-repeaters, the author concluded that repeaters learn no more in two years than nonrepeaters in one year.

SMITH, MAUDE W., BICKFORD, FERN E., DAVIS, D. A., and OTTO, H. J. Age-grade and Grade-Progress-Data for Children in One-Room Rural Schools," *The Elementary School Journal*, XXXVII (January, 1937), pp. 336-343.

A vocabulary analysis of 28 commonly used first readers.

METHODS OF TEACHING

BARNARD, J. D., and ROBERTSON, M. L. "A Comparison of the Relative Effectiveness of Two Methods of Teaching General Science," *Science Education*, XX (December, 1936), pp. 47.

An experimental study of "pupil developed" vs. "teacher-prepared" study guide in which the former is found to be superior to the latter.

BARRY, LINDA, and PRATT, MARJORIE. "A Remedial-Reading Program in a Public High School," *The School Review*, XLV (January, 1937), pp. 17-28.

The authors present the results of a remedial reading program carried on in the Shorewood (Wisconsin) Junior-Senior High during the school years 1934-35 and 1935-36.

BREED, F. S., and BALSTON, ALICE L. "The Direct and Indirect Methods of Teaching the Addition Combinations," *The Elementary School Journal*, XXXVII (December, 1936), pp. 283-294.

An experimental study of the direct and indirect methods of teaching the addition combinations in which the latter was found superior.

FEDER, DANIEL D., and COCHRAN, GRACE. "A Study of Individualized Instruction at the College Level," (Reprint from *The Modern Language Journal*, XXI (October, 1936), pp. 23-35.

A program of individualized instruction recently studied at the University of Iowa (1933) report that as a feasible measure in the process of "breaking the lock-step" in higher education, the method of individualized instruction has proved to be a practical and effective means of motivating achievement and fostering desirable habits of scholarship.

CURRICULUM CONSTRUCTION

MILLER, WILLIAM A. "The Picture Choices of Primary-Grade Children," *The Elementary School Journal*, XXXVII (December, 1936), 273-283.

The author presented 25 photographs of five different types to 100 pupils in each of the first three grades with the request that they indicate their preferences. Data are presented relative to these references.

SIMMONS, MAITLAND P. "Changing Conceptions of Teaching Helps in General Science Textbooks," *Science Education* (December, 1936), pp. 211-214.

From 18 general science textbooks investigated covering a period of years, 1911-1934, the author presents data relative to changes in teaching helps.

THORNDIKE, EDWARD L. "The Vocabulary of Books for Children in Grades 3 to 8," *Teachers College Record* (December, 1936), pp. 196-206.

The author presents a word account of words not included in the first 2500 of the Thorndike 20,000 word list in books recommended for supplementary reading for children in Grades 3 to 8 by Terman and Line.

VALENTINE, W. L. "Common Misconceptions of College Students," *The Journal of Applied Psychology*, XX (December, 1936), pp. 633-658.

A study of the superstitions and misconceptions of college students giving detail for 87 statements.

CHILD WELFARE, GUIDANCE AND DEVELOPMENT

HATTWICK, BERTA WEISS. "The Influence of Nursery School Attendance upon the Behavior and Personality of the Preschool Child," *The Journal of Experimental Education*, V (December, 1936), pp. 180-191.

The author presents the results of a study of 106 children with nursery school experience and a similar number without this experience. Those with the nursery school experience showed improvement in social adjustment.

MEASUREMENT, STATISTICS, AND SCIENTIFIC TECHNIQUES

COFFEY, H. S., and WELLMAN, BETH L. "The Role of Cultural Status in Intelligence Changes in Preschool Children," *The Journal of Experimental Education*, V (December, 1936), pp. 191-203.

The author presents data on the relationship between the cultural level of the parents and the intelligence of the children. In general, the higher the cultural level of the parents, the higher the intelligence of the children.

PALLISTER, HELEN. "American Psychologists Judge Fifty-Three Vocational Tests," *The Journal of Applied Psychology*, XX (December, 1936), pp. 761-768.

This article gives the composite judgments of 38 psychologists as to the value of 53 vocational tests.

NEW TESTS

CLEMENT, J. A. *General Analysis and General Appraisal Outlines* for use in the study of Textbook materials of instruction for the Junior and Senior High School areas or levels of teaching and learning (Urbana, Illinois: University of Illinois, 1936), pp. 18.

The author, after examining a large number of textbooks, has prepared this

general analysis and general appraisal outline, to be used in the study of textbook materials of instruction for the Junior and Senior High School areas or levels of teaching and learning.

HILDRETH, GERTRUDE H. *Arithmetic Achievement Tests*, Form 1, 2nd Ed. (New York: Bureau of Publications, Teachers College, Columbia University, 1936)

This achievement test is designed to measure speed and accuracy in the four fundamental processes, computational skill, skill in the use of signs, and the ability to solve problems. The test can be used for survey and diagnostic purposes.

HILDRETH, GERTRUDE. *Personality and Interest Inventory*, Elementary Form. New York: Bureau of Publications, Teachers College, Columbia University, 1936.

This inventory has been prepared for recording personal data by pupils in grades 4-8. This information is considered useful by teachers in interviewing children who present more serious problem cases.

LINDQUIST, E. F. (General Editor) and OTHERS. *The 1936 Iowa Every-Pupil Test of Basic Skills*, Iowa City, Iowa: Bureau of Educational Research and Service, Extension Division, State University of Iowa, 1936. Test A: Silent Reading Comprehension; Test B: Vocabulary Basic Study Skills; Test C: Basic Language Skills; Test D: Basic Arithmetic Skills.

A battery of tests prepared under the direction of E. F. Lindquist in collaboration with other members of the faculties of the College of Education and the University Experimental Schools, State University of Iowa, Iowa City, Ia.

MANWILLER, CHARLES E. *The Manwiller Word Recognition Test*, Forms A and B. Yonkers-on-Hudson: World Book Co., 1935.

This test is designed for the first and second grades to measure a child's ability to recognize word forms. It can be used to measure achievement as well as a survey or diagnostic purposes.

OTIS, ARTHUR S. *Otis Quick-Scoring Mental Ability Tests*. Yonkers-on-Hudson: World Book Company, 1936.

The author has developed three new tests, the Alpha test for grades 1-4; the Beta Test for grades 4-9; and the Gamma Test for Grades 9-12. The Alpha Test consists entirely of pictures and designs; the Beta Test a revision and extension of the Otis Self-Administrating Test of Mental Ability (intermediate) and the Gamma Test a revision of the Otis Self-Administrating Test of Mental Ability (higher examination).

WOOD, BEN D. *The Coöperative Achievement Tests*. A Handbook describing their purpose, content, and interpretation (New York: Coöperative Test Service of the American Council of Education, 1936), pp. 39.

The American Council on Education has prepared a handbook describing the Coöperative Tests, stating the purposes and methods of constructing the Coöperative Tests, and explaining the system of Scaled Scores which have been devised to facilitate the use and interpretation of Coöperative Tests Scores. A bulletin of information on The International Test Scoring Machine is included with the handbook.

RESEARCH NEWS and COMMUNICATIONS

Address all research news and communications to Carter V. Good, Teachers College, University of Cincinnati, Cincinnati, Ohio.

Oakland, California, Studies.—Forty-three administrative research projects and investigations were completed by the Research Associates of the Oakland Public Schools from June, 1935, to October, 1936. Most of the studies concern teacher personnel. Nine of the completed studies and three of those now in process may be considered of more than local interest.

A study age of distribution of teaching personnel in the Oakland Public Schools shows that when age of personnel and teaching load are compared there is practically no correlation except in physical education.

A comparison of Oakland's salaries for principals with salaries for similar administrators in California cities of 50,000 population and over reveals that principals of small elementary schools receive about $2800, of large elementary schools about $3300, of junior high schools about $3800, and of senior high schools about $4500.

With respect to the incidence of teacher absence in the Oakland Public Schools, the elementary teacher is absent twice as much as the high school teacher. The younger the teacher group the greater is the percentage of absence.

With respect to salary allowance for sick and other absent leave in various California cities, a few systems allow full pay for five to ten days of illness, while others permit only partial pay. Teachers absent due to quarantinable disease, court subpoenas, accidents on the job, and death in the family are generally allowed full salary. Most California cities provide for partial remuneration in case of sabbatical leaves.

Class size in the Oakland Public Schools is as follows: senior high school median, 30; junior high, 35; elementary, 38; and kindergarten, 46.

An analysis of the supervisory personnel in selected United States cities shows that supervisors are commonly found in the fields of music and physical education; the median number of teachers assigned per supervisor is 150. The typical supervisor receives $3300 and is on duty five days a week from 8:30 to 5:00.

With respect to the status of piano accompanists in selected United States cities, five of the seventeen systems employ full-time school accompanists, pay them $90.00 a month and require them to do clerical work part-time.

Another study shows that, in California, high school newspapers are in general issued weekly, are printed in each school, and are commonly financed by student-body subscriptions and commercial advertising.

Salary schedules in operation in various California cities in 1936-37 are as follows: typical elementary minimum salary, $1300, and the maximum, $2000; typical junior high minimum, $1500, and the maximum, $2350; typical senior high minimum, $1650, and the maximum, $2600.

Investigations under way include a study of principals' salaries, a comparison of salaries paid to school nurses with salaries paid to nurses in the public health service, and the present practice in selection of school custodians, with a suggested procedure.

The first eight studies were made by Henry Magnuson, and the last four by Spencer Benbow, Associate in Research, the latter of whom provided the foregoing report.

Subject Headings in Education.—It is expected that in 1937 the H. W. Wilson Company will publish a list of headings selected for use in dictionary catalogs of educational material. It is particularly designed for the libraries that are limited to or have a very large number of educational books, such as teachers colleges and normal school libraries. It does not attempt to include every term found in this broad field, but to select those topics on which books as well as periodical articles have been written.

Instead of the usual alphabetical arrangement of such lists these headings are grouped according to topics; a few of the topics being adult education, child accounting, curriculum, educational psychology, guidance, health education, and tests and measures. Within the groups the relationships of topics are shown. An alphabetical index, which includes not only the chosen headings but synonymous terms, is the direct means of finding a heading in the list.

A feature of the work which should prove valuable is the supplying of definitions with the headings. These are quoted or adapted from educational books, the name of the authority being cited in each case. To illustrate further the use of the headings, examples of books are also supplied.

The main purpose of the list is to serve as an aid to catalogers of educational books who lack a knowledge of the special and rapidly changing terminology of the field. It should also, by bringing together in convenient form definitions found in a variety of sources and by providing an arrangement which shows the relationships of subjects, prove a ready reference tool for the educator, research worker, and student of education. The compiler is Clyde Pettus, Assistant Professor of Library Science, Emory University.

Studies at Indiana University.—During the year, 1935-36, the School of Education at Indiana University has continued its research work in various fields of education. Some of these studies have already been published, and others are to be released for publication in the near future.

The results of a local survey of education, made by the School of Education in 1934-35, have been published under the title, "A Basis for the Improvement of Education in Rural Monroe County, Indiana." This survey is organized under the following general topics: the setting, the agencies of instruction, the results of instruction, and recommendations concerning the future program of the rural schools of the county.

Another study that has recently appeared in bulletin form deals with the guidance of 1B pupils through prognosis, and is entitled, "Reading Readiness—A Prognostic Study." This investigation was conducted in the Bloomington, Indiana, public schools.

The School of Education has continued its work in the field of bibliography, and has compiled two bibliographies during the past year. One of these, a bibliography on the teaching of English, contains more than 3,300 annotated ref-

erences to material which appeared on the subject in periodicals, bulletins, and books between January 1, 1930, and December 31, 1935. This bibliography came off the press in December, 1936. The second bibliography, which will appear as the March, 1937, issue of the bulletin, is on the subject of comparative education and contains references dealing with various phases of education in many different countries outside the United States.

There are six research projects in progress at the present time, including a study made in coöperation with the National Institutional Teacher Placement Association to discover bases for improving the facilities of non-profit teacher selection and placement, a study of out-of-line and unadjusted school children in Monroe County, a program of religious teaching for public school pupils, an analysis of factors affecting efficiency in addition, an attempt to determine the content of courses in the introduction to teaching, and an analysis of the content of four-year courses for the training of elementary teachers.

The Bureau of Coöperative Research, connected with the School of Education, has continued to assist the state each semester in the development of the state high school examinations. The tests developed at Indiana University include Algebra I, Plane Geometry, and Latin I and II.

This information was forwarded by H. L. Smith of Indiana University.

Bureau of Research, University of Iowa.—In addition to continuing its program of educational test development, publication and distribution which has extended over a period of almost a quarter century, the Iowa Bureau is emphasizing this year four somewhat distinct types of research and service projects.

1. **Annual state-wide coöperative and non-competitive surveys of general educational accomplishment.** — During the last school year more than thirty thousand pupils in two hundred school systems in the state of Iowa participated in these comparative studies at the beginning and at the end of the year. Interesting data on growth and improvability were obtained.

2. State-wide survey of mental abilities underlying accomplishment. — During the present school year a comprehensive mental testing program has been stimulated by the Bureau. Two purposes have prompted this program. The first is to stimulate interest in the more effective use of modern group tests of the general abilities which underlie educational accomplishment. The second is to provide adequate data for an extensive experimental study of the effect of certain age, progress, and ability factors on educational test norms. Preliminary evidence indicates that these results should provide the basis for rather startling improvements in test norms in the future.

3. Collaboration with the College of Education in the development and distribution of the new *Iowa Every-Pupil Tests of Basic Skills.*—These tests, measuring (a) Silent Reading Comprehension, (b) Basic Study Skills, (c) Basic Language Skills, and the (d) Basic Arithmetic Skills at the sixth, seventh, and eighth grade levels, are prepared in new and comparable forms each year. For the first time since the inauguration of the program, the 1936 edition with comprehensive norms and a constructive supervisory program was announced for nation-wide use. More than one-hundred fifty thousand of these tests were distributed in connection with the Iowa Every-Pupil Testing Program last year.

4. Research in the essential oral and written language abilities.—Written prod-

ucts representing all types of composition and letter-writing situations, amounting to more than a million and a half running words, have been entered one unit at a time on tabulating machine cards and are now being coded to reveal all types of variations in the capitalization, punctuation, and usage situations involved. International Business Machine equipment is used in making the almost unlimited number of possible classifications and tabulations. Data thus far obtained point the way to significant effects on the language curriculum through the more exact determination of the specific variations in these language skills which actually bear the burden of social usage. This is only one of several important projects in this field.

The Bureau of Educational Research and Service of the University of Iowa is under the direction of Harry A. Greene, who supplied this news note.

Research in Louisville.—The functions of the Bureau of Research of the Louisville, Kentucky, Public Schools are of three major types: (1) administrative research, (2) supervision of group testing in the schools, and (3) individual testing of pupils presenting special problems. The Bureau is so organized that each of the three research assistants has one of these functions as a particular responsibility, the director of research supervising the work of the entire department.

The director of research is also chairman of the curriculum cabinet. During 1935-1936 this cabinet performed three functions. First, curriculum issues and problems were studied intensively; second, a tentative statement of philosophy to guide curriculum development was formulated; and third, a handbook, now in the process of completion, was prepared to guide the study and discussion of curriculum problems, looking toward the organization of study groups on a city-wide basis.

During 1935-1936, a survey of pupil teacher personnel record and report forms used in the Louisville Public Schools was completed. With the findings of this study available, the Bureau is now ready to inaugurate a program of revision which should culminate in the production of a new, unified and adequate set of record and report forms to be used throughout the system.

A handbook on the "Salary Schedule for Instructional Personnel" is ready for publication. In addition to the salary schedule itself, this handbook includes an introduction summarizing the history and development of the salary schedule, and a series of questions and answers designed to clarify and interpret various provisions of the schedule. With regard to the application of the schedule, a study has been completed which shows the effect of certain provisions of the salary schedule on salaries of instructional personnel over a six-year period, from 1936-1937 to 1941-1942.

The Bureau has also completed a salary schedule for clerical workers. This schedule, which is an adaptation of the schedule for clerical workers at the City Hall, became operative in September, 1936.

Routine administrative investigations to be made during the present school year include studies of class size, room utilization, grade-progress, and age-grade status.

For 1936-1937 the city-wide testing program directed by the Bureau includes the following tests: group intelligence tests for all 1B, 6A, and 10B pupils; readiness tests for all 1B pupils; language usage tests for all 4B pupils, a battery of

achievement tests for all 6A pupils, and reading and spelling tests for 11A pupils. Other standardized group tests are distributed by the Bureau and are given at the discretion of teachers and principals. A special study is being made of all fourteen-year-old pupils in elementary schools, looking toward the placement of such pupils in ungraded groups in the junior high schools.

The customary testing of individual pupils who present special problems is being continued. Each year approximately three hundred such pupils are given one or more individual tests, including intelligence, performance, achievement, and functional vision tests. Reasons for which pupils are referred to the Bureau for individual testing may be classified as follows: acceleration, retardation and poor work, personality or behavior, and placement. Recommendations for individual pupils are based on test results, family studies made by the visiting teachers, and other pertinent factors.

The director of research is J. E. Brewton, who supplied this news item.

Maryland Studies. — Supervisors and teachers are coöperating with the State Supervisor of Elementary Schools (I. Jewell Simpson) in three experimental studies. One is designed to determine effective methods of preparing children to read and to understand fourth-grade history. Another is designed to increase the quantity and improve the quality of pupil responses by evaluating the quantity and quality in a number of elementary school classes. Another study compares various factors in the general and specific reading abilities of pupils in the last year of the elementary school and the first year of high school, with the idea of developing more effective procedures of instruction.

The county supervisor and teachers in Caroline County made a survey of the extent to which pupils in fifth, sixth, and seventh grades are developing certain habits and skills stressed by the instructional program: ability to locate information in books, to read maps and graphs, and to formulate questions. The results were disappointing, but valuable data were secured on which to build the year's objectives.

In Garret and Anne Arundel counties, supervisors collected during visits to classrooms one hundred or more assignments for both study and recreational reading which were carefully analyzed and evaluated by teachers during a series of teachers' meetings, resulting in considerable improvement in subsequent reading assignments.

Experiments throughout the State are constantly being conducted on grouping and regrouping pupils with the idea of providing for individual needs and differences in the several school subjects. Allegany County is experimenting with an experience curriculum prepared for "junior primary" groups of children who enter school at the age of six years but, as disclosed by tests in reading readiness, do not have the mental maturity for reading. In Baltimore County a supervisor of primary grades teaches reading to a number of C groups (very slow pupils) for the purpose of finding ways of interesting these pupils in reading and of building desirable reading habits.

Supervisors and teachers are constantly endeavoring to find satisfactory answers to questions such as the following:

How may children's experiences function more effectively in the learning process?

How to enlarge the informational vocabulary?

With middle and upper grades, is it

better to anticipate difficulties before children read or shall each child contend with his own difficulties?

How to train children to organize and summarize?

Research in New York State.—One of the most significant studies being carried on by the Educational Research Division is that of "Enlarged Administrative Units in New York State." The study is being carried on in selected units of approximately the size of a county. While a great many facts still need to be determined before one can make a thoroughly scientific study of enlarged units, nevertheless it was thought best to employ assumptions where facts are missing, to secure a general picture, and to find more specifically the type of problems which would have to be met in creating larger administrative units. The following assumptions and facts have formed the starting point for these studies: (1) The minimum size of the administrative unit should be such as will furnish at least 200 pupils for grades 10, 11 and 12. (2) Younger children should not be obliged to be transported as far as older children. (3) Sufficient salary should be paid teachers so that the better teachers will be retained in a new unit. (4) Buildings should have adequate site and playground and furnish sufficient space for such special services as health education, auditorium exercises, medical examinations, dental examinations, and guidance service. (5) In addition to the regular subjects traditionally taught, every pupil should have the opportunity of studying the following subjects or receiving the following services: health service, dental service, art and music instruction, physical education, guidance, practical arts, homemaking, agriculture, and commercial subjects.

A study of the "Trends in Public School Costs" has been completed. In many respects they may not be different from those that would be found in other states. Two particularly interesting facts came to light. Whereas in 1880 the state aid amounted to 30 percent of total expense, it declined rapidly until in 1919 it amounted to only 8 percent. Through various state laws this trend was reversed and in 1934 the state was paying nearly 33 percent of the total expense of public schools. Because it has been frequently said that some of the newer services were causing the increased expenditure, an estimate was made of how much these services actually cost. It was found that by eliminating medical inspection, nurse service, dental service, transportation, lunches, and the like the total cost would have been reduced only 5 percent.

Believing that one way of defining the educational problem of the state was to know quite specifically the varied educational needs of pupils of the same chronological age, data were gathered which would aid in an intensive study of variability. If we eliminate the lowest 2 percent and the highest 2 percent of the children on the assumption that they need special provision, we find that the remaining pupils show a range at age 7 of 2 school years, at age 10 of 5 school years, and at age 14 of 7½ school years. It is suggested that the educational status for any pupil might be defined by reference to high, median, or low achievement *for age* in terms of generalized rather than of local standards.

A survey has recently been published of "Special Provisions for Mentally Retarded and Gifted Children in New York State." There are in New York State about 1.7 percent of the enrollment of the first 6 grades in classes for mentally subnormal pupils. This is about one per-

cent of the total enrollment. Sixty percent of the communities make some provision for subnormal children while 13½ percent make provision for gifted children. Cities in general more often provide some classes for retarded children than do the small communities, but the percent of the enrollment provided for in the smaller communities tends to be considerably greater than the percent provided for in cities.

Two investigations represent a beginning in the study of social and economic trends in New York State and their bearing upon education. The first study deals with "Changes in the Occupational Pattern of New York State." In the main it is based upon census data, but supplemented by other reports. While the occupational changes taking place in this state are similar to those in other states, there are certain differences. Also an attempt was made to interpret the changes in terms of modifications which need to be made in the educational program.

The other study is concerned with the "Trend of Immigration to New York State, 1920-1935." Between one-third and two-fifths of the immigrants to the United States are now coming to New York State. The proportion is greater now than twenty years ago. The educational problem is best represented by the net immigration, that is, the number coming to New York State but not subtracting those leaving. Between 1924 and 1930 there was an average of about 80,000 annually. Between 1933 and 1935 the average dropped to about 11,000. Emigration has increased to such an extent that since 1931 it is greater than immigration, and it is interesting to note further that a larger proportion of emigrants are from the unskilled than from the professional or "white collar" occupations.

The director of the Research Division is W. W. Coxe, who provided the above information.

Portland, Oregon, Research.—In May, 1936, "The Elementary Retardation Report" showing the wide variation in mental retardation of pupils in the various schools of Portland, and the high degree of correlation between the socio-economic status of the sub-district and the retardation of pupils in schools, was completed. A companion survey, "An Analysis of Upper Grade Retarded Pupil Surveys for June, 1935, and January, 1936," indicates that arithmetic and language carry the heaviest failure load through the schools. History runs a very close second to language, in difficulty for retarded pupils. Reading runs much lower. The study showed the need of a school adapted to the needs of pupils, who, for mental or emotional reasons, do not fit into regular school situations.

An analysis of several Portland public elementary schools which represented the average in terms of age, acceleration, and retardation for the Portland school system was made at Reed College in coöperation with the Department of Research of the Portland Public Schools. The purpose of this study was to determine the relationship of the mental and chronological age to the grade placement for the different schools, revealing the efficiency of the supervision as well as guidance within the buildings in the different types of communities. The importance of mental age as a factor in promotion was the principal thing brought out by this report. In certain schools, on the basis of chronological age, only 15 percent were retarded, whereas on the basis of mental age, the retardation ran as high as 70 percent. This was true in schools in sub-districts of higher socio-economic status. In districts of poor

socio-economic status, the schools showed a greater retardation on the basis of chronological age, but much lower retardation on the basis of mental age. That is, they were working up to their capacities better than pupils in other schools mentioned above. The conclusions from this study seem to be that school curriculums should be modified to meet the needs of pupils in the various sub-districts where there are large areas with a homogeneous enrollment, as in Portland.

Considerable research has been carried on in the remedial reading field. Periodical samplings were made of a special group assigned to the Personal Achievement Room where a special program is carried on. This group showed remarkable achievement over a period of one term, under the plan, making an average of one and a half grades of progress in a semester.

A curricular testing program was inaugurated in the Spring term, 1936. Extensive testing was carried on in reading from the third through the eighth grade. A complete battery of tests was given to the 8B grade. The results of this battery, plus teachers' marks and intelligence quotients, were used as a basis for promotion. One particular gain from this program was the elimination of approximately 130 pupils from the regular high schools, who were unable to measure up to the academic standards required on standardized achievement tests and mental tests. The results of these tests are made available to the high schools upon request.

The high schools were furnished with a complete list of elementary school graduates, both regular diplomas and irregular diplomas (not admitting pupils to a regular high school), showing average marks received in the major subjects, intelligence quotient, etc.

This information was provided by Lewis C. Martin of the Portland Department of Research.

Curriculum Study in Texas.—The Texas curriculum program consists of an initial three-year period, followed by continuous revision. The first year was called the year of orientation; the second, production; and the third, experimentation. Texas is now in the third year of the program.

Several thousand teachers took extension courses, attended summer schools, and met in local, county, and district meetings for the purpose of studying the philosophy and techniques of curriculum making in 1934-1935, the year of orientation.

In the year 1935-1936, the year of curriculum production, the orientation program was continued; and in addition, experience units were developed and reported by various teachers throughout the State, exhibits of units were prepared for various meetings, demonstration teaching was done, and community, county, and district meetings of two types were held. The first type consisted of general assemblies in which curriculum leaders spoke relative to the philosophy and techniques of the program. The second type consisted of group meetings in which teachers held round-table discussions on their immediate problems in their specific fields or interests.

It has been estimated by some curriculum leaders in the State that 30,000 teachers participated in the program during the year 1935-1936. Several thousand units were sent to the Curriculum and Textbook Division of the State Department of Education. These units represented every field of work in the public

schools and every section in the State. They were made available to the production committee members who met in five colleges and universities of the State in the summer of 1936 to prepare the tentative courses of study.

Tentative courses of study for all subjects in the elementary school and homemaking in the secondary school are now available. These courses are the result of the coöperative effort of public schools, colleges and other educational agencies of the State. It is not expected that all schools of the State will use the tentative courses during the school year 1936-1937. They will be used in the schools which have been designated by the Executive Committee as curriculum schools and by other schools which request the tentative courses in time that copies may be made available. The schools may use only one phase of a course or they may use all the courses. They will be asked to keep records of the responses of pupils and community.

The courses are tentative, incomplete, and experimental. Suggestions, criticisms, and additions will be welcomed. The courses are tentative in that they will be revised again and again before they are produced in complete form. They may be altered in philosophy, general pattern, and material.

The tentative courses are experimental in nature. The Executive Committee will not undertake to defend them or indoctrinate teachers on their value. It will not undertake to claim something for them that will not be shown by the records in the try-out schools. It will evaluate both formal and informal learning situations and use both formal and informal evaluation techniques. Anecdotal records of reactions of children, teachers, administrators, and parents will be kept. Along with these informal records there will be standard achievement tests and tests prepared by the classroom teacher. In addition to trying out the courses of study, there will be various specific experiments relative to grade placement, new content, and new administrative organization. It is hoped that graduate students in the state will coöperate with the movement by choosing thesis subjects from among these problems.

The tentative courses of study are not to be followed verbatim in the try-out schools. They are not to be prescriptive in nature when they are adopted for state-wide use. They are to be considered as handbooks of information to be used when the teachers cannot find more vital material. The tentative courses of study in the other secondary fields will be prepared during the school year 1936-1937. They will be made available in mimeographed form. Teachers are being urged to continue to send reports of the curriculum material which they produce to the curriculum and Textbook Division, State Department of Education.

A coördinating committee will revise the tentative courses in the summer of 1937 for state-wide use in the year 1937-38. It will then become the duty of the State Curriculum Executive Committee to stimulate and direct research in curriculum problems and to challenge teachers to formulate and keep tentative attitudes on teaching materials and techniques.

Graduate schools throughout the State are coöperating in directing problems which contribute to the success of the curriculum program in the State. These problems deal with curriculum evaluation, grade placement, progressive techniques, and administrative organization for doing integrated teaching.

The foregoing information was provided by J. C. Matthews, Codirector of Curriculum.

Curriculum Study in the South.—Activity in curriculum improvement continues on a broad scale in the southern states. State-wide programs are in progress in Mississippi, Arkansas, Tennessee, Alabama, Georgia, Virginia, Louisiana, and Texas. Research projects are carried on in these programs by central committees which prepare guidance materials for the use of groups throughout the state, and by special research committees which conduct studies to serve as a basis for reports of committees on such problems as scope and aims. Among the publications produced during recent months are the following:

Mississippi, State Department of Education, Jackson, Mississippi.

A Guide for Curriculum Planning, Bulletin No. 3, Mississippi Program for the Improvement of Instruction, October, 1936. Pp. 234.

Areas of Human Activity and Problems of Life (Mimeographed)

Alabama, State Department of Education, Montgomery, Alabama.

Curriculum Study Bulletin (in press)

Survey Work-Book for Community Analysis (in press)

Socio-Economic Conditions in Alabama and Their Implications for Curriculum Development (in press)

Report of the Committee on Point of View, Aims, and Scope (in press)

Louisiana, State Department of Education, Baton Rouge, Louisiana.

Study Program, Louisiana Program of Curriculum Development, August, 1936. Pp. 166.

Tennessee, State Department of Education, Nashville, Tennessee.

Study Bulletin (in press)

A Guide for Elementary Teachers (in press)

Arkansas, State Department of Education, Little Rock, Arkansas.

A Tentative Course of Study for Arkansas Schools, Secondary Section, Bulletin No. 5, The Arkansas Coöperative Program to Improve Instruction, 1936. Pp. 292.

A Tentative Course of Study for Arkansas Schools, Elementary Section (in press)

Texas, State Department of Education, Austin, Texas.

Tentative Course of Study for Years One through Six, May, 1936. Pp. 559.

Virginia, State Department of Education, Richmond, Virginia.

Tentative Materials of Instruction Suggested for the Core Curriculum of Virginia Secondary Schools, Grade IX (mimeographed)

Georgia, State Department of Education, Atlanta, Georgia.

Procedures in Knowing and Using the Environment (mimeographed)

Tentative Report of Committee on the Scope of the Curriculum (mimeographed with printed chart)

City programs continue the experimental development of curriculum materials. Fort Worth and Port Arthur, Texas, have recently published courses of study which represent extended exploratory and experimental work. Canton, Vicksburg, Okolona, and Jackson, Mississippi, are engaged in exploratory work in the development of correlated and integrated programs in the secondary school. Birmingham has recently completed an extensive community survey in which all teachers participated. The report (900 pages) is made available to the various schools in typed form.

Stimulation to curriculum improvement in teacher training institutions and sec-

ondary schools may be expected from the Commission on Curriculum of the Southern Association of Colleges and Secondary Schools, formed last year as an outgrowth of a survey of teacher training curriculums in the member colleges. The Commission is organized and is projecting its program. Virginia and Arkansas are developing plans for intensive statewide programs of curriculum improvement in teacher training. A number of institutions are conducting experiments in this area. Alabama College, the State College for Women, is experimenting with a plan in which nearly all professional training for college students in the senior year is given in one course which is built around the Training School Program and in which a number of faculty members participate. The majority of the students' time is devoted to this course during the semester in which professional training is given.

This information was supplied by H. L. Caswell of George Peabody College for Teachers who has been active in curriculum work in the areas mentioned in this news note.

Study of Reading Disability.—An impetus has recently been given the study of reading disabilities by the appearance of reading clinics throughout the country, the introduction of courses by major universities and teachers colleges for the training of specialists in this field, the manufacturing of commercially distributed instruments for examining and treating reading problems, and the extension of diagnostic and remedial work to the high school and college levels.

Until a few years ago there were very few agencies to which parents and teachers could refer children suffering from severe forms of reading disability. Physicians and oculists were occasionally consulted concerning these problems, but they were unfitted both by training and experience to understand them. We owe to them many of our former misconceptions concerning the role of various brain conditions and organic factors in producing reading disturbances. Teachers, too, were handicapped by a lack of knowledge and clinical tools.

Now many of our universities and other private and professional institutions maintain reading clinics as distinct units for diagnostic and remedial work. Those maintained by universities usually emphasize the research or experimental point of view. As a consequence of their research, a more intelligent understanding of the problems of diagnostic and remedial work is now possible.

This knowledge is transmitted to teachers and prospective specialists through courses in "Reading Problems," "Psychology of Reading," etc. It is customary to conduct practice clinics in connection with these courses. This gives the teacher an opportunity to deal with reading problems concretely, and to become practiced in the manipulation of diagnostic and remedial tools. Yet, until recently, teachers were oftentimes required to travel long distances to register at the few institutions offering this work.

Research in the laboratory of the reading clinic requires expensive and elaborate apparatus, but the appearance of improved articles in our technical literature justifies this. Many of these instruments have been modified by various agencies for commercial distribution. This is desirable not so much for the fact that the clinical utility of these instruments has been demonstrated, but because it emphasizes the necessity for precision and control in securing information.

Teachers are interested in these in-

struments. They ask: Do they work? Are they expensive? Should I buy one? It might be suggested that although certain experimental investigations require the use of apparatus, the clinical application of the results may not require it. This is perhaps true in the case of eye-movement cameras.

The extension of diagnostic and remedial work to the high-school and college levels offers a new field of specialization. Recent research has strikingly shown that reading disabilities among adults are as grave and as frequent as among children. This is not surprising. With increased maturity, reading becomes a much more highly developed and complex psychological process. This refinement is not only susceptible to injury from many more directions, but it is also less easily attained than is the relatively simple standard required of children.

The needs of these older individuals are being supplied on a more extensive scale than formerly by school psychologists in the high schools, and by courses in "How to Study," "Freshman Orientation," "Study Methods," etc., at the college level.

The present need in the general field of reading disability is for more enlightening information concerning the development of meaning. Meaning is the concept in terms of which reading is defined. A perfect execution of the mechanics does not assure faultless reading in terms of comprehension. A systematic study of the role of experience and constructive activities in teaching reading and in learning to read might be a fruitful approach to this problem.

This information was forwarded by Irving H. Anderson of Harvard University.

PUBLIC SCHOOL CORRELATED ATTAINMENT SCALES

A battery adapted from successfully used tests organized to give a measure of school success as it depends on:

(1) each pupil's aptitude for learning;

(2) the adequacy of individual and class instruction;

(3) the present adjustment of curriculum material to the needs of growing minds.

We invite your interest in the new PUBLIC SCHOOL CORRELATED ATTAINMENT SCALES for use in the seventh and eighth years of the school course. The important features of these scales are:

(a) *Attainment* in school studies and the *aptitudes* of each pupil for such studies are measured on the same scale and at the same examination. All scores are recorded on this scale which is based on the need that, in a ten-year period of school work, one-tenth of the attainment possible for a particular pupil should be obtained in each year. This is a natural standard of progress upon which all school education may be measured for its success.

(b) The tests discover the *power* for successful learning in addition to ability attained by habit drill.

(c) Page 12 of the test booklet for each pupil provides for a *picture graph* of that pupil's percent score on each of the attainment tests and also on each of three types of measure of aptitude for school work, and for showing the mean of the attainment scores and of the aptitude scores. It is possible that these two means will have the same score. They should not differ much more than 5% to 10%. A retest should be given to check the work of pupils having a wider difference.

(*Continued on reverse side*)

PUBLIC SCHOOL CORRELATED ATTAINMENT SCALES

(*Continued from previous page*)

(d) The picture graph for any pupil will show the difference of his attainment on each of the tests, and the entire graph may be above or below a *class graph* drawn from the medians of the different scores for the class as a whole.

A study of the individual graphs in relation to the graph of the median attainments and of the aptitudes of the class shows relations that directly correlate the pupil's success:

first, to the source of success due to the pupil's own learning aptitudes;

second, to the source of the adequacy of pupil and class instruction, as shown by the correlation of his scores on each test to the median or tendency of the class;

third, in some instances a lack of success in particular topics of the curriculum is found to be common, not only to members of a class but also common to very many classes with other teachers, indicating inadequate teaching material for pupil success at the time it is given for instruction.

These PUBLIC SCHOOL CORRELATED ATTAINMENT SCALES are published in two forms, FORM A and FORM B. You may use one form now and the other form for your follow-up testing at the end of the school year.

The price of either form is $5.00 per 100 copies or 6c each in smaller quantities, plus postage. This is inexpensive for a test measuring attainment as well as aptitude for learning.

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